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COMMUNITY CONTROL AND CRIME: AN ECOLOGICAL ANALYSIS

*University of Washington* PH.D. 1984

Community Control and Crime:

An Ecological Analysis

by

DANIEL PAUL DOYLE

A dissertation submitted in partial fulfillment
of the requirements for the degree of

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to Offer Degree Department of Sociology

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**Doctoral Dissertation**

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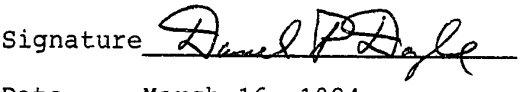
Signature 

Date March 16, 1984

University of Washington

Abstract

# COMMUNITY CONTROL AND CRIME: AN ECOLOGICAL ANALYSIS

by Daniel Paul Doyle

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The goal of this dissertation is to improve upon the ecological analysis of deviance by proposing and testing a more theoretically based ecology of deviance. The ecological analysis of crime and other deviant behaviors has a long history and spans several academic disciplines. However, there are many problems in this literature most of which can be traced to the lack of a strong theoretical grounding.

A community control perspective is put forth in an effort to address many of these problems. This perspective has theoretical roots in the work of Durkheim, the social disorganization theorists of the Chicago School, and in modern social control theory.

Several important ideas are drawn from Durkheim: the vital role of the community as the source of social control; the importance of social integration; and the unique integrative role of religious affiliation. The importance of population instability as a force disruptive

to community integration was a major theme of the Chicago sociologists. Finally, the notion of social bonding is extracted from modern control theory and applied to the ecological level of analysis.

The perspective says that factors in a community that encourage bonding among community members increase the social integration of the community and results in lower rates of deviance. Religious affiliation and population stability are examples of the kinds of factors that facilitate bonding. It is hypothesized that these kinds of factors will operate best on forms of deviance that are primarily intentional rather than impulsive in nature.

The perspective is tested using data on crime in Canadian towns and cities of a population of 10,000 or more (n=218). The community control perspective is contrasted with alternative explanations. The empirical analysis provides substantial evidence of the efficacy of this approach.

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# I. Introduction

In the study of deviance in general and crime and delinquency in particular, there have been a host of rather narrow and supposedly competing theories. Theoretical work has tended to concentrate on one or another forms of deviant behavior while ignoring others. Theories that apply to juveniles may not work well when applied to adults. Academic specialization has divided up the study of deviance on the basis of level of analysis: psychologists study the individual while sociologists focus on the social environment.

The history of the study of deviance is a progression of shifts in theoretical emphasis. In the last 100 years in the United States, biology, psychology, and sociology have successively dominated the study of crime and delinquency (Hirschi and Rudisill, 1976).

Such diversity and division of labor is not necessarily a bad thing. The variety of viewpoints that have been brought to the study of deviance has stimulated much important theoretical and empirical work. Long held ideas about what "everyone knows" and extra-theoretical assumptions deserve to be challenged (Hirschi, 1973).

Unfortunately, different theoretical traditions are often viewed as necessarily competitive rather than

possibly complementary. There is a need for individual theorists and their followers to look beyond their own perspective. While mindless eclecticism is not likely to lead to anything but confusion, the selective integration of the best of past and present theories could be extremely valuable. The rise and fall of theories of crime and delinquency is not always simply a function of empirical adequacy. Theories gain and lose popularity for a variety of reasons some of which have nothing to do with how good they are. The reexamination of earlier theories and their integration with more recent theory is a potentially fruitful enterprise. The present study in the ecological analysis of deviance is an attempt to carry out such an exercise.

The ecological description and analysis of crime and other deviant behaviors has a long history and spans several academic disciplines. This type of analysis has enjoyed several waves of popularity dating back to the 1830's. The more recent revival of ecological analysis grew out of the work of the so-called Chicago School beginning in the 1920's. It has found expression in the work of sociologists, geographers (e.g. Harries, 1974), economists (e.g. Fleisher, 1966), and other social scientists.

But the ecological analysis of deviance remains a seriously flawed enterprise--so much so that at least some writers have described it as a theoretical dead end (Hood and Sparks, 1970). It will be shown that much of this literature has conceptual and methodological problems that have common roots--the lack of a strong theoretical grounding and a well specified operationalization.

Theoretical weakness and empirical inconclusiveness characterize most of the ecological analyses. The bulk of the work is descriptive rather than analytical, content to merely document certain patterns in the spatial distribution of deviance. The study of the ecology of deviance has often become bogged down in a morass of methodological and statistical controversies that are in part the result of theoretical weaknesses. In the absence of clear hypotheses, the use of some very appropriate techniques is not possible. Confusion regarding the proper unit of analysis has led to misinterpretation and misunderstanding. Hosts of studies have provided empirical support for a variety of sometimes contradictory explanatory variables. Because of these problems, the ecological analysis of crime has lost the position of importance in criminology that it held during the 1930's, '40's, and '50's.

The individual level theories that have largely superceded the Shaw and McKay tradition generally exhibit a higher level of theoretical sophistication than the ecological analysis. Most attempt to specify the causal links between variables and can produce falsifiable hypotheses. Thus, they are analytic rather than merely descriptive.

Nevertheless, the move away from ecological to more individual level theories left a significant void--the importance of the wider social context, of community level factors that influence crime rates. Criminology during this period has focused primary attention on individual offenders and their criminal careers rather than crime on the macro level (Gibbons, 1979: 73). This can be seen in the work of Sutherland on differential association theory, Merton's anomie theory, the development of offender typologies, and in modern social control theory. Though practiced primarily by sociologists, the study of deviance has been interested primarily in the individual and his immediate social situation while the wider ecological context is largely ignored.

This suggests the need for integrating ecological analysis with one of the more theoretically sophisticated individual level theories of deviance. As will be shown, social control theory and ecological analysis complement

each other well. Control theory provides theoretical grounding for ecological analysis while ecological analysis can add another dimension to control theory.

The goal of this dissertation is to develop and test a more analytically and conceptually satisfying ecology of deviance. By integrating the work of Durkheim and the modern social control theorists with that of Shaw and McKay and other ecological analysts, it is possible to bring some order to the confusion. In so doing, the goal is to solve some of the serious problems in this literature and provide a more thorough and conclusive test of the importance of some major ecological level explanations.

The following chapter is a critical review of previous work in the ecology of deviance. Important literature in this tradition is reviewed and assessed to identify and discuss the major gaps and problems in ecological studies.

In Chapter III, a community control perspective is developed and formally stated. Important theoretical concepts are drawn from the work of Durkheim, Shaw and McKay, and modern social control theorists.

A set of ecological data from Canada that have properties that allow a test of a reconceptualized theoretical ecology of deviance has been put together.

Chapter IV describes the data, defines and operationalizes major concepts, states some general propositions that guide the analysis, and introduces the remainder of the dissertation, the empirical analysis.

## II. The Ecological Study of Deviance: A Critical Review of the Literature

The purpose of this chapter is to review and critically evaluate previous work done in the ecological study of deviance. An attempt will be made to trace the development of this form of analysis, to identify major findings focusing especially on studies using the town or city as the unit of analysis, and to point out major theoretical, methodological and substantive problems in past work. Because of the sheer number of ecological studies, no attempt will be made to comprehensively review this literature. Those interested in such a review should consult one of the several available[1].

It will be demonstrated that this literature is fraught with theoretical, methodological, and empirical shortcomings. The review of the empirical research will reveal a host of confusing and often contradictory findings. The goal is to demonstrate the need for a theoretically based ecology of deviance and a conclusive test of ecological level explanations.

### The Development of the Ecological Approach

The phrase "ecological approach" is somewhat misleading because it has come to encompass a potpourri of

studies that have very little to do with the original meaning of the words (Wilks, 1967:138). The adjective "ecological" clearly implies a particular theoretical orientation based on a biological analogy. Yet the studies that fall under this rubric are pretty much exclusively concerned with the spatial distribution of certain social problems (Baldwin, 1975:212). Some researchers prefer "areal studies" (Baldwin, 1975), "spatial analysis" (Scott, 1972), "etiological studies" (Mladenka and Hill, 1976), or the "geography of deviance" (Georges, 1978). The terminology is not important. For the purpose of this paper "ecology of deviance" will be used to describe the study of the spatial distribution of deviant behavior. The theoretical focus and thus the unit of analysis is a geographic area rather than individuals.

Most of the studies falling under this rubric are in the area of crime and delinquency. There have been some ecological studies of suicide (e.g. Durkheim, 1951; Sainsbury, 1955; Gove and Hughes, 1980) and mental illness (e.g. Faris and Dunham, 1939; Hollingshead and Redlich, 1958), but the bulk of the literature has been concerned with the distribution of crime and delinquency. A variety of ecological units of analysis have been utilized.

The ecological study of crime and delinquency had its early origins in the so-called cartographic school of

criminology which flourished in France and then England from 1830 to 1880 (Sutherland and Cressey, 1970:51, Phillips, 1972:87). These early criminologists were concerned with the geographic location of crime and criminals and the relationship of crime to variables such as literacy, urbanization, occupational differentiation, and poverty (Pyle, 1974:14). In France, Guerry is said to have been struck by the uniformity in the spatial distribution of crime by area and type (Phillips, 1972:87). Certain districts consistently showed high crime rates year after year. Fletcher (1849) studied counties in England and Wales and presented shaded maps and tables of rates to demonstrate the association of crime with education, population density, industrialization, literacy, and race. Other important works in the cartographic tradition include Rawson (1839), Quetelet (1849), Glyde (1856), and Mayhew (1862).

By the end of the nineteenth century the cartographic approach to the study of deviance had been eclipsed by the rise of the typological approach that focused on the characteristics of the individual (Pyle, 1974). The school of criminal anthropology enjoyed great popularity as researchers (e.g. Kretschmer, 1925; Hooton, 1939) sought to show that deviants had physical or mental defects or else were "throwbacks" to an earlier stage of

evolutionary development.

The revival of the spatial analysis of deviance had its impetus in the work of the "human ecologists" of the University of Chicago. Borrowing some terminology from biology, Robert E. Park and his colleagues (1925) posited an intimate relationship between social organization and physical location. Continuing the analogy, they pointed out the need for "biotic balance," the situation that exists when society is in a state of social equilibrium. The community can exist only if the symbiotic competition of its parts are kept under control based on some kind of consensus. The human ecologists viewed the movement of population and the spread of urban areas in terms of a sequence of "invasion," "dominance," and "succession," the stages that can be observed when one plant species takes over the area occupied by another (Park, 1936; Morris, 1957:5-6,8).

It was these ideas of how urban expansion took place that provided the force behind the development of the ecology of deviance. The axiate theory of city growth, developed by Richard Hurd (1903), said that cities tend to spread out from the center along transportation lines creating a star-like pattern. But by far the most influential theory of urban growth is the concentric zone theory advanced primarily by Park, Burgess, and McKenzie

(McKenzie, 1921; Park et al., 1925). They said that cities tend to develop outward from the city center in successive zones resembling rings (Georges, 1978:12-13). The zones form as industry and commercial enterprises move into the city centers and the wealthier residents move farther and farther from the center. The zones near the center then suffer an inevitable decline making them the obvious residence for the poor and new immigrants (Morris, 1957:8). The Chicago ecologists noted that certain zones, especially this "zone of transition" had the highest rates of crime and delinquency. This led to the hypothesis that areas characterized as socially disorganized would be the spawning ground for deviance. According to this view, social pathologies result from the breakdown of ties between individuals and the consequent weakening of restraints. This "individualization" occurs most readily in the socially disorganized community. The automobile, popular press, and population movement were seen as important forces that disturb the equilibrium of the community (Park et al., 1925:25, 106-108). However, it was the process of urbanization that came to be the major focus of those human ecologists concerned with deviance.

The concentric zone theory has guided literally hundreds of urban studies in the United States and elsewhere. This flood of studies sought to test the

concentric zone hypothesis and delineate the "delinquency areas" characterized by urbanization and rapid change where crime, delinquency and other deviant behaviors are common and even normative (Shaw and McKay, 1931).

The best of this literature is found in the work of Clifford Shaw and Henry McKay (Shaw, 1929; 1930; Shaw and McKay, 1931; 1942; McKay, 1959). Shaw and McKay sought to explore both the spatial distribution of crime and delinquency and the factors that led individuals to become delinquent or criminal. So their writings combined ecological analysis with the study of the life histories of delinquents and criminals.

The findings of these studies have been summarized as follows:

1. The rates of juvenile delinquents conformed to a regular spatial pattern. They were highest in the inner-city areas and tended to decline with distance from the center of the city. (gradient hypothesis)
2. The same spatial pattern was shown by many other indexes of social problems.
3. The spatial pattern of rates of delinquents showed considerable long-term stability even though the nationality makeup of the population in the inner-city areas changed greatly from

decade to decade.

4. Within the inner-city areas, the process of becoming delinquent occurred within a network of interpersonal relationships involving the family, the gang, and the neighborhood. (Finestone, 1976:25)

However, the nature of the interaction between the individual and his physical and social environment is not clearly spelled out in their work (Kornhauser, 1978: 118). At first, Shaw and McKay emphasized the role of social change. Again, following the work of Park and Burgess, they saw the rapid expansion of the city as the cause of individual disaffiliation. Ties to the traditional institutions of the family, church, and community were weakened in the face of the moral diversity and social disorganization that characterized certain sections of the city. In his case study of a thief, The Jack Roller, Shaw (1930) attempts to show that the process of becoming a delinquent is a process of the gradual severance of ties between the individual and conventional institutions and an increasing affiliation with other dissatisfied boys in gangs (Finestone, 1976:30).

The hypothesis that social change was the root of social disorganization and thus disaffiliation became increasingly untenable for Shaw and McKay in the face of

their findings regarding the long-term stability of patterns of delinquency. They sought to avoid this dilemma by positing the concept of the delinquency tradition. The tradition of delinquency consists of a special cultural heritage of norms, knowledge, and skills that is transmitted from generation to generation in a given area (Shaw and McKay, 1942; Finestone, 1976:31; Pillai, 1981: 104). This delinquent subculture can be seen as an adaptation of the residents of an area to their deprived situation (Shaw and McKay, 1942:459). The concepts of social disorganization, disintegration, and disaffiliation were thus overshadowed by an emphasis on the role of delinquent subcultures and socioeconomic factors in the explanation of delinquency.

**Recent Work in the Ecology of Deviance**

An enormous number of studies followed those of Shaw and McKay attempting to replicate the gradient hypothesis, adding new variables, and attempting to correct or improve the methodology of the ecological studies. For purposes of presentation, these studies will be divided up into two types: those that focus on intracity differences[2]; and those examining intercity differences. Only the latter category will be reviewed in any detail though some of the more important studies in the other category will be

mentioned.

## Intracity studies

Some of the intracity studies that followed those of Shaw and McKay were important because they were attempts to use more sophisticated methodologies. In 1954, Lander pioneered the use of factor analysis in the study of the ecology of deviance. In addition to correlational analysis, he used a factor analysis to try to discover a number of underlying or fundamental factors to account for the intercorrelations among the predicting variables (Lander, 1954:51). In his study of Baltimore, he was able to isolate two factors which he called "anomie" and "economic". He concluded that anomie was the more important factor in understanding delinquency. In attempts to replicate Lander's study and a similar study of Detroit by Bordua (1958), Chilton (1964) uncovered serious errors in Lander's factor analysis. Nevertheless, Chilton's conclusions were not significantly different from those of Lander.

Noteworthy for its detail and complexity is Schmid's (1960) study of Seattle. In addition to correlational and factor analyses, he used urban typologies derived by Tyron (1955) and Shevky and Bell (1955) as well as gradients and isopleth techniques to examine crime in Seattle. He concluded that the areas of the city where criminals

reside and where crime is high have the same characteristics: low social cohesion, weak family life, low socioeconomic status, physical deterioration, high rates of population mobility, and personal demoralization. Schmid's and later Quinney's (1964) use of social area typologies was important because it represented the first attempts at providing a theoretical base for ecological analysis. Boggs' (1965) study was exceptional in that she proposed a theory as to why certain areas of the city should have more crime. Using the concept of environmental opportunities, she hypothesized that there are two important environmental factors--the familiarity of the offender with targets and the profitability of these targets. She used a factor analysis of crime in St. Louis to isolate these two dimensions.

More recent intracity ecological studies have used multiple regression analysis to test models of deviance. One of the earliest examples, was the the study done by an economist, Fleisher (1966) who sought to estimate the effects of low income and unemployment on the delinquency rate of areas in and around Chicago. He found that income had a substantial effect.

## Intercity studies

Of more direct relevance to the present study are the intercity ecological studies. Since there have been far

fewer such studies, it is possible to examine them more completely with the goal of extracting important correlates of community crime rates and identifying deficiencies in previous research.

Ogburn (1935) was among the first to correlate crime rates with various socioeconomic variables for a substantial number of U.S. cities. Using the total crime rate for his dependent variable, he was able to isolate seven important factors: percent foreign born, percent offspring foreign born, sex ratio, average amount of rent paid, church membership, change in the rate of growth, and change in wages paid.

Other early work comparing the characteristics of U.S. cities was done by Angell and Schuessler and Slatin. In a number of articles, Angell (1942; 1947; 1949) sought to classify cities in terms of their degree of "social integration". Social integration was measured by two indexes--a "welfare effort index" and a "crime index". He found that population heterogeneity (in terms of nationality and race) and in- and out-migration of the population explained more than three-fifths of the variance in integration. Continuing the tradition of using exploratory factor analysis, Schuessler (1962) and Schuessler and Slatin (1964) studied the components of variation in the crime rates of large American cities in

order to, like Ogburn (1935), isolate a number of factors associated with crime. Although overall results were difficult to interpret, Schuessler and Slatin's (1964) analysis suggests that a "minority relations" factor was associated with crimes against the person while an "anomie" factor was related to property crimes.

In more recent studies the use of factor analysis has given way to the use of multiple regression techniques. Webb and Clemente (1972) used a stepwise multiple regression to study the relationship between urbanization and property crime for all U.S. communities over 25,000 population in 1960. Urbanization was operationalized in terms of the industrial diversification of an area. They found a moderate relationship between urbanization and crime. Harries (1973, 1974) used Standard Metropolitan Statistical Areas (SMSAs) as his unit of analysis and devised regression models to explain "general crime" (burglary, auto theft, larceny, robbery, rape) and "violent crimes" (assault, murder). Again, a stepwise regression was carried out. The size of the SMSA and having a low proportion of persons employed in manufacturing were the best predictors of general crime when other factors were controlled. Violent crime was best predicted by the proportion Black and proportion low income.

Population density is a correlate of interest to many researchers. Following from the work of Calhoun (1962) and others, it has been argued that density or crowding leads to social pathology (Carnahan, Guest, and Galle, 1974). McCarthy et al. (1975) sought to explain homicide and aggravated assault in 171 American cities contrasting measures of density and crowding with a subculture of violence argument. Using multiple regression, they concluded that both explanations had merit. A study by Booth et al. (1976) included property crimes as well using 656 U.S. cities. They found only weak support for their hypothesis that crowding leads to increased personal and property crimes.

The publication of the results of the National Crime Survey (NCS) led to a number of new studies of the ecology of deviance. Before the NCS, the F.B.I. Uniform Crime Report (UCR) was the only source for comprehensive data on crime across more than a few cities. The UCR is based on information gathered by local police departments about crimes that become known to the police. The NCS is a victimization survey--a sample of the population in a city is drawn and asked in what ways they had been victimized. A number of researchers have used NCS data (available for 26 cities) to study ecological correlates of crime victimization rates. Shichor et al. (1979, 1980) and

Decker et al. (1982) divide victimizations into three types: property crimes with contact, property crimes without contact, and nonproperty assaultive crimes. They found that density was positively related to property crimes with contact and negatively related to property crimes without contact and nonproperty crimes.

A recent article (Sampson, 1983) uses the theories of defensible space (Newman, 1972) and opportunity theory (Cohen and Felson, 1979; Hindelang et al., 1978) to account for differences in victimization within neighborhoods in the 26 cities. Sampson hypothesizes that neighborhoods with high structural density offer more opportunities for potential offenders and fewer opportunities for visual surveillance and guardianship by residents. He found that structural density was positively related to both robbery and assault.

Opportunity theory also provides a part of the theoretical framework for the approach used by Brantingham and Brantingham (1980) in their study of larger SMSAs. They also posit the need for motivation to engage in crime. Economic specialization data were used to measure opportunity structure while data about socioeconomic status were used to measure the potential motivations. They found that murder and assault were associated with motivation variables; burglary, larceny, motor vehicle

theft, and robbery were associated with opportunity variables; and rape was associated with both (Brantingham and Brantingham, 1980: 105).

Two recent studies use the concept of "social integration" in discussing crime rates in U.S. cities. Crutchfield et al. (1982) hypothesize that among larger cities, those with higher rates of geographic mobility will manifest weaker social integration and as a result higher crime rates. In their regression analysis, they contrasted the effects of social integration (as measured by mobility and population size) with the effects of "blocked opportunities". Their results indicated that the social integration measures were better predictors of rape, burglary, larceny, and the property crime index than the blocked opportunity measures. Surprisingly similar findings were published by Stark et al. (1980). Using the work of Durkheim and the modern control theorists as a point of departure, they see church membership as an important source of the integration of communities. Their correlational analysis of SMSAs showed that rape, burglary, larceny, and the property crime index were strongly negatively correlated with an area's church membership rate while the relationship for other types of crime was substantially weaker.

Interest in the role of income inequality as a predictor of crime rates has been reactivated recently by the publication of an article by Blau and Blau (1982). Their analysis of 125 SMSAs was designed to test a hypothesis derived from Blau's (1977) general macrosociological theory: racial and economic inequality leads to high rates of criminal violence. Their regression analysis found much support for this hypothesis.

## An Assessment of Previous Ecological Studies

Ecological studies of deviance have been the object of much criticism. The following paragraphs review many of these critiques in order to identify deficiencies of the ecological literature. It is the hypothesis of this discussion that most of the problems in the ecological literature have a common root--the lack of a clearly specified theoretical orientation.

### The ecological fallacy

Perhaps the most often repeated criticism of ecological analyses is that they often fall prey to what has come to be known as the "ecological fallacy." Baldwin (1979: 44) points to Polk (1957) and Willie (1967) as particularly obvious examples. In his famous essay, Robinson (1950) demonstrated that correlations based on

aggregates (ecological correlations) can not be used as substitutes for individual level correlates. He found that correlation coefficients calculated on the basis of population aggregates could be in the opposite direction of the corresponding individual level coefficients. He asserted that "in each study which uses ecological correlations, the obvious purpose is to discover something about the behavior of individuals." He believed that ecological correlations were used only because individual level data were not available (Robinson, 1950:352).

Robinson's dictum has been tempered somewhat by the work of a number of researchers in recent years. For example, Hammond (1973) analyzed the sources of the discrepancy between aggregate and individual correlations and specified the conditions under which cross-level inferences are possible. Firebaugh (1978) developed a rule to use to test whether or not cross level inferences are problematic. Gove and Hughes (1980: 1171) and others argue that aggregate data can be used to make inferences about individuals when the research has a properly specified model.

Even if one accepts that Robinson is correct in saying that inferences about individuals cannot be made on the basis of aggregated data, this does not constitute a sweeping indictment of ecological theory. This

"aggregation bias" only arises when the investigator tries to use group data to draw conclusions about individuals (Langbein and Lichtman, 1978). Contrary to Robinson's assumption, ecological correlations can be of great sociological interest apart from any attempt to understand individual behavior (Menzel, 1950: 674; Goodman, 1953). Much of the work of Durkheim represents an effort to establish the importance and even the primacy of social factors-- the "collective reality" (Durkheim, 1951: 37-38). Researchers can avoid the ecological fallacy by being careful in how they interpret their results.

## Measurement problems

Like others who study deviant behavior, ecological researchers are troubled by measurement problems. One of the oldest debates in the study of crime and delinquency concerns the usefulness of official data based on government records of crimes known to the police, arrest records, and court data. The availability of the NCS victimization data has led to increased awareness of the possibility of problems (Decker, 1977; Booth et al. 1977; Connidis, 1979; O'Brien et al., 1980). With the exception of the NCS data which is available for a limited number of cities, there often is no alternative to official data. Nevertheless, a number of the ecological studies can be faulted for using offender or imprisonment rates. As a

general principle, it is best to use indicators that are as close to the actual event as possible (Sellin, 1931). Therefore, Shaw's use of court appearances as an index of delinquency has rightly come under fire (Robison, 1936; Morris, 1957:85). While a complete discussion of the merits of official versus nonofficial data is beyond the scope of this review, several recent articles have led to increased confidence in official measures (Hindelang, 1978; Hindelang et al., 1979). An assessment of the official Canadian data used in this dissertation will appear in Chapter IV.

A number of the older empirical studies used the total crime index as the measure of crime. But as many of the later studies point out, crime is not a unitary phenomenon. Different types of crime respond differently to the various ecological factors. There is a need to distinguish between crime types in carrying out ecological analyses.

Another measurement problem that often crops up in ecological studies is confusion between the location of where an offense took place and where the offender resides. Some studies imply that the latter is the most important yet use data on the former in plotting the spatial location of crime (Morris, 1957:73). This confusion is especially a problem in the case of cities

which have high crime rates in part because the denominator used is based on residents only and is not representative of potential victims (e.g. those who work downtown but live in the suburbs)(Gibbs and Erickson, 1976; Stafford and Gibbs, 1980).

Ecological analyses have been criticized for their use of ratio variables. The argument is made that ratio variables that share common components (for example use the same population figure for a denominator) have built in dependencies favoring one direction of association (Schuessler, 1974). Long (1980) argues convincingly that the use of ratio variables with common components is not in and of itself a problem. Rather, the presence of measurement error (especially random error in the common component) is the more serious difficulty in the use of ratio variables. Error is compounded by ratio variables so that even a small amount of error can have serious consequences.

Methodological and statistical problems

The ecological analyses of the past are characterized by a lack of methodological and statistical sophistication for the most part. Most studies have been exploratory rather than analytical in nature.

The use of exploratory factor analysis in ecological studies of deviance has also come under fire. Hirschi and

Selvin (1973:155) describe factor analysis as "a confession of ignorance." In the absence of guiding theory, factor analysis can be a useful technique for getting a crude picture of the major dimensions of variation. It also can sometimes be helpful as a data reduction device, but the "factor approach" does not produce theory (Wilks, 1967:139; Beasley and Antunes, 1974:440). The use of factor analysis is often not a straightforward procedure and is especially subject to errors and multiple interpretations. The selection of variables for inclusion, the procedural decisions, and the interpretation of the factors produced are all highly subjective processes (Baldwin, 1975:218; Baldwin, 1979: 49-52; Hirschi and Selvin, 1973:155; Davidson, 1981: 88). Often no interpretation is possible. A number of the factor analyses used by ecological studies contain procedural errors, (Gordon, 1967; Pillai, 1981:103) but a more common mistake (e.g. Lander, 1954; Schmid, 1960) is to throw a variety of kinds of variables (often including both independent and dependent variables) into a factor analysis (Beasley and Antunes, 1974). The result is often confusion rather than clarification as researchers try to fit the extracted factors into an explanation (Baldwin, 1975:218: Hirschi and Selvin, 1973:154).

More recent studies have abandoned the factor analytic approach in favor of more powerful statistical techniques. But statistical problems are still common. Even those studies that do use multiple regression seldom put forth a well specified model or test alternative explanations. Studies using victimization data often draw conclusions based on only twenty-six cases. The use of stepwise regression is problematic because it takes the decisions about which variables are important and how they are ordered in the analysis away from the researcher. A search of the literature to date has found no attempt to describe the relationship among ecological variables in terms of a path analysis or structural equation model.

## Theoretical problems

Many of the deficiencies cited above are symptomatic of a deeper, more pervasive problem with the ecological analyses of deviance--their frequent lack of strong theoretical grounding (Pillai, 1981:107; Georges, 1978:3; Wilks, 1967:139, Beasley and Antunes, 1974:440; Quinney, 1964: 154; Baldwin, 1975; 1979; Davidson, 1981:88). With the exception of several recent analyses noted above, theory has often been absent altogether or else taken the form of post-hoc ruminations. This has had a host of unfortunate consequences.

Lack of clarity about what is being studied has led to accusations of ecological fallacy. Clear conceptualization is a prerequisite to proper measurement. Furthermore, in the absence of theory and hypotheses, researchers wind up relying heavily on less useful exploratory procedures for analysis such as factor analysis. Tautological propositions and confusion about causal order is often the result (Baldwin, 1975:218; Lander, 1954:9-10; Wilks, 1967:139; Hirschi and Selvin, 1973:149).

The bulk of this literature is descriptive rather than predictive with too much emphasis on spatial distribution per se (Wilks, 1967:146). What theory there is tends to be post hoc or poorly specified. The relationship between variables can be tested but in order for such analysis to be useful, the causal links between the variables must be specified.

Given the theoretical shortcomings, it is understandable why no consensus has developed as to which explanatory variables are important. Many of the empirical studies cite correlations between deviance and one or more variables but do not specify why or how the variable has an effect. Many studies focus on a single correlate failing to control for or often simply ignoring other possible explanations. There is clearly a need for

a more thorough empirical test that contrasts the various explanations.

Furthermore, much of the evidence indicates that crime is not a unitary concept so that different models might be needed to explain different types of crime. A single theory of deviance cannot be expected to explain all types deviance let alone all types of crime. However, an adequate theory should be able to specify the types of deviance that it can explain.

The present project is an attempt to overcome many of these deficiencies and to develop and test an ecological approach to crime. The next chapter provides the the theoretical basis of this exercise.

## Notes for Chapter Two

1. Among the better literature reviews of ecological analyses are: Baldwin, 1975; 1979; Georges, 1978; Morris, 1957; Phillips, 1972; Pyle, 1974; Scott, 1972; and Wilks, 1967.

2. Commonly cited one-city ecological studies of deviance include: Beasley and Antunes, 1974 (Houston); Block, 1977; 1979 (Chicago); Boggs, 1965 (St. Louis); Bordua, 1958 (Detroit); Bursik and Webb, 1982 (Chicago); Chilton, 1964 (Indianapolis); Defleur, 1967 (Cordoba, Argentina); Fleisher, 1966 (Chicago); Jarvis, 1972 (London, Ontario); Lander, 1954 (Baltimore); Lee and Egan, 1972 (Denver); Maccoby et al., 1958 (Cambridge, MA); McKenzie, 1921 (Columbus); Mladenka and Hill, 1976 (Houston); Morris, 1957 (Croydon, England); Pyle, 1974 (Akron); Quinney, 1964 (Lexington, Kentucky); Sellin and Wolfgang, 1969 (Philadelphia); and Singh et al., 1980 (Ottawa, Ontario).

## III. Integration and Control: Developing the Community Control Perspective

A basic proposition of this dissertation is that it is possible to avoid many of the pitfalls that plague the ecological analysis of deviance by developing a more theoretically based ecology of deviance. Perhaps the best criterion for the adequacy of a theory is whether it is testable, that is, able to generate falsifiable hypotheses (Popper, 1968: 37). In order to generate such hypotheses, the theoretical constructs must be clearly conceptualized so that they can be operationalized. Also, the causal links between constructs must be explained not merely asserted.

The goal of this chapter is to develop and formally state a community control approach to the ecology of deviance. The community control approach is based primarily on the theoretical and empirical work of Emile Durkheim, the social disorganization theorists of the Chicago School, and the modern social control theorists.

### Durkheim On Social Integration

Although the Chicago researchers and social control theorists both have firm roots in the work of Durkheim, some of Durkheim's most important concepts have not found

expression in these perspectives. Durkheim's writings provide the springboard for the community control perspective by making explicit certain key concepts and relationships: the importance of the community as an agent of social control; the concept of social integration; and the role of morality and religion in social integration.

An ongoing theme running through Durkheim's work is the importance of the collectivity and its role in social relations. Much of Durkheim's work was a reaction against the biological and psychological reductionism popular at the time he was writing (Coser, 1977: 129). The reductionist view says that all human behavior including social behavior can be understood by studying biology and psychology. For Durkheim, the collectivity or society is not merely a collection of individuals but also has reality in and of itself. As he put it in The Elementary Forms of Religious Life:

> Society is a reality sui generis; it has its own peculiar characteristics, which are not found elsewhere and which are not met with again in the same form in all the rest of the universe. The representations which express it have a wholly different contents from purely individual ones and we may rest assured in advance that the first add something to the

second (Durkheim, 1915: 28-29).

His reification of the collectivity allows Durkheim to hypothesize that the community affects individuals.

Durkheim emphasized the role of society as an agent of social control. The collectivity influences or even controls behavior through the promulgation of "social facts". Social facts are those obligations, duties, sets of beliefs and practices that exist external to ourselves yet constrain our behavior. Durkheim (1938: 13) defined a social fact as:

> ...every way of acting, fixed or not, capable of exercising on the individual an external constraint; or again, every way of acting which is general throughout a given society, while at the same time existing in its own right independent of its individual manifestations.

To the degree to which social facts operate to constrain deviant behavior, a social group is said to be "socially integrated". Social integration refers to the cohesiveness of the group, the strength of collective sentiments, and intensiveness of collective life (Durkheim, 1951: 201-202). Durkheim's major conclusion in Suicide (1951: 208-209) is that suicide varies inversely with the degree of integration of social groups. For example, the suicide rate of a country declines in times

of war or other crises because:

> great social disturbances and great popular wars rouse collective sentiments, stimulate partisan spirit and patriotism, political and national faith, alike, and concentrating activity towards a single end, at least temporarily cause a stronger integration of society (Durkheim, 1951: 208).

Another dominant theme found throughout the work of Durkheim is the integrative role of religion. For Durkheim, religion was the transfiguration of society itself so that religion was the symbolic representation of the collectivity (Aron, 1970:46). Durkheim (1915: 22) states that "religion is something eminently social. Religious representations are collective representations which express collective realities." He attributes to religion integrative properties not found elsewhere (Nisbet, 1965:74). But for Durkheim, the essence of religion lies not in an individual's faith or personal morality. Individual morality is an abstraction because morality only has meaning in society (Durkheim, 1933: 399). Rather, religion's most fundamental and enduring elements are social. The most powerful aspects of religion are not doctrines but rather the symbols and rituals that stimulate in man a sense of membership, the

feeling of belonging. Religion binds men through membership and participation (Nisbet, 1965: 78; 1974: 165). Religion then, is an indispensable force in the maintenance of community morality and the restraint of deviance (Nisbet, 1965: 74). Durkheim (1933: 169) noted that the strongly held rules of a community inevitably take on a religious character.

In The Division of Labor, Durkheim hypothesizes a decline in the importance of religion as societies move from "mechanical" to "organic" forms of organization, from social relations based primarily on similarity of individuals to those based on interdependence. But, as several commentators have noted (eg., Bellah, 1973: xlix), in his later work, notably The Elementary Forms of Religious Life, Durkheim (1915: 474-475) reasserts the vital role of religion even in the modern secular world:

> Thus there is something eternal in religion which is destined to survive all the particular symbols in which religious thought has successively enveloped itself. There can be no society which does not feel the need of upholding and reaffirming at regular intervals the collective sentiments and the collective ideas which make its unity and its personality.

From these various themes can be extracted several important conclusions: the collectivity acts as a force to constrain the deviant behavior of it membership; the greater the social integration of a collectivity, the more it will be able to constrain its membership; and religion is an essentially social phenomenon that possesses unique integrative properties.

## Disorganization and Deviance

The work of the Chicago sociologists helps to complete a community control perspective of deviance by adding another dimension--the environmental influences on social integration. While Durkheim focused on the sources of integration in social life, the Chicago sociologists sought to flush out those aspects of community life that disrupt social equilibrium--the sources of social disorganization. While Durkheim found that integration arises out of social life, Park, Shaw and McKay and others enumerated those aspects of the physical and social environment that lead to social disruption. The work of these theorists has been described in some detail above, so only brief comment is needed.

As we have seen, the concept of community disintegration and disorganization played a large role in the writing of Shaw and McKay. But they saw social change

and urban growth as the source of community disorganization. The disruption and disintegration engendered by these social processes leads to the breakdown of affiliations. However, in the face of the stability of the distribution of social problems, they felt the need to modify their position somewhat and posit the existence of a delinquency subculture (Finestone, 1976: 31). Perhaps they relied too heavily on the biological analogies of Park and Burgess and were not able to recognize other sources of disequilibrium. Social disorganization can be present even in areas not undergoing urbanization or the influx of immigrants. Even in areas where growth and foreign immigration have stabilized, deviance and the differential spatial distribution of crime persist. The "delinquency subculture" solution to this dilemma is unsatisfactory because as Hirschi (1969:15) and others have pointed out, it leads to nonfalsifiable hypotheses. A further limitation of their work has been pointed out previously--the lack of specification of the causal links between disorganization and deviance.

Though the work of Shaw and McKay is primarily descriptive, it can contribute substantially to a reconceptualized and theoretical ecology of deviance. Shaw and McKay (and many researchers who followed)

isolated and described many of the important environmental factors that influence deviance in an area. Their careful descriptive analyses suggest fruitful directions for theory development. In addition, they put forth the vital proposition that population instability leads to social disorganization and in turn leads to disaffiliation of individuals. This is not to say that social disorganization necessarily causes personal disorganization. But rather that the lack of community strength hinders the formation of individual affiliations or leads to their breakdown (Shaw, 1929: 205; Faris, 1948: 161).

## Social Control Theory

Modern social control theory helps to complete the community control perspective by suggesting how social integration and environmental disorganization influence rates of deviance. Control theory posits the importance of social bonds between individuals and between an individual and the community.

Social control theories generally trace their roots to the work of Durkheim, especially some of the important concepts that have already been mentioned. Perhaps the earliest formulation of a modern social control theory was by Albert Reiss (1951). He put forth the hypothesis that

delinquency is a behavior that results from the failure of personal and social controls. Personal control refers to an individual's ability to refrain from behaviors contrary to the norms and rules of the community. Social control is the ability of the community to make the norms and rules effective. He identified three sources of personal and social control: control in the family (whether the needs of the child are met and norms and rules disseminated); community and institutional controls (whether the neighborhood is stable and school truancy and misbehavior are low); and personal controls (whether individuals have strong ego and/or superegos). Delinquency is a consequence of the ineffectiveness of control structures and/or the absence of previously established personal control structures. Reiss's data analysis of delinquency recidivism in Cook County provided some support for his hypotheses. Recidivists were more likely to come from families that were not adequate in term of satisfying the needs of the children and disseminating norms. They were more likely to come from unstable areas, less likely to accept the control of social groups, and less likely to have mature ego and superego development.

While Reiss's work is important, it is subject to several criticisms. Some of the hypotheses seem

tautological and thus not very satisfying because they predict delinquent behavior on the basis of other delinquent behavior. More importantly, his theory fails to specify how weaknesses in the control forces are translated into delinquency. While individual elements of the theory were based on previous research, the theory itself does not say why the control forces keep delinquent behavior in check.

The work of Jackson Toby (1957) attempts to provide the mechanisms by which social control operates on the individual. Toby posits the existence of "stakes in conformity". He says that youngsters vary in the extent to which they feel that they have something invested in conventional society, a stake in American society. For kids with a good reputation, disgrace is a very powerful sanction while for those already in disgrace, there is nothing to lose. The child who is doing well has built up certain investments or stakes in conformity: good relations with parents; a high level of school achievement; future plans. Those from socially disorganized areas have limited opportunities and thus are less able to build up these stakes. While Toby's ideas suggest some possible directions, control theory still remained largely unspecified when he was writing.

Perhaps the first complete statement of a control theory of crime was by Reckless (1961). Drawing on his earlier empirical work (Reckless et al., 1956; 1957; Scarpitti et al., 1960) and the work of Reiss (1951) and Nye (1958), Reckless called his proposed theory the "containment theory". He hypothesizes the existence of both "inner" and "outer" control systems. Under the rubric of inner containment, Reckless includes a variety of factors having to do with self-image and self control. Outer containment refers to structural elements such as the consistent presentation and enforcement of rules, reasonable behavioral expectations, and opportunities to be involved. While again it is not clear how inner and outer containment controls behavior, Reckless's work is significant because he sought to formally describe control theory and to apply it to crime in general rather than only delinquency.

The publication of Causes of Delinquency by Travis Hirschi (1969) marked an important advance in the development of control theory. Hirschi put together many of the control theory concepts into a well developed theory and systematically tested that theory using a large self-report delinquency study. He proposed a series of hypotheses that allowed him to contrast control theory with other major sociological theories of delinquency.

More importantly for the development of the community control theory, Hirschi's social control theory provides the most satisfactory answer as to why social disorganization leads to the release of control of the individual.

The concept of the social bond is extremely important in Hirschi's control theory. To the extent to which an individual's bonds with the rest of society are weak or broken, the higher the likelihood that the individual will be delinquent. Hirschi (1969: 16-26) posits four elements of the bond: attachment, commitment, involvement, and belief.

Attachment refers to sensitivity to the opinions, wishes, and expectations of others. Hirschi assumes widespread agreement on the norms of society so that norm violation is to act contrary to the wishes of others. Since we value the opinions of those to whom we have ties, those without ties feel free to deviate.

Commitment is obedience based on fear of the consequences. This does not refer strictly to fear of legal sanctions but rather also to fear of the forfeiture of what has been invested in lines of conventional activities. This is similar to what Toby called "stakes in conformity".

Involvement is engrossment in conventional activities. Many persons probably do not become delinquent simply because they are occupied in nondelinquent activities and don't have the time or energy to deviate.

Belief refers to an acceptance of the legitimacy of the rules of society. To the extent to which an individual agrees that the norms of society are justified, the more bonded that person is to society, and the less likely to violate those norms.

Hirschi's empirical work provides much support for the importance of social bonds in preventing delinquency. For example, he found that nondelinquent kids were more likely to show attachment to their parents and school. Similarly, commitment to conventional activities and involvement in conventional activities were associated with low delinquency. Boys who express belief in the legitimacy of the law are very much less likely to be delinquent (Hirschi, 1969: 85, 115, 171, 196, 203).

Hirschi's control theory contributes to the community control approach by suggesting a possible theoretical link between social disintegration and environmental disorganization at the community level and rates of deviance. The link is the social bond. Control theories state that deviance occurs where the bonds between

individual and society are weak or broken (Hirschi, 1969:16). In the absence of bonds of attachment to others and to the community as a whole, the individual is free to deviate. Social control theory is an individual level theory, concerned with explaining why a given individual deviates. It does not directly address questions regarding the ecological distribution of deviance.

**A Community Control Approach to the Ecology of Deviance**

By integrating the ideas of Durkheim, the social disorganization theorists, and modern control theory, a community level ecological perspective on deviance can be developed that will complement individual level control theory. Some basic assumptions and components of community control come from Durkheim. He believed that processes occurring at the community level can affect individual deviance. In the socially integrated community, the deviant behavior of community members is constrained. Furthermore, for Durkheim religion plays a vital integrative role. The work of the social disorganization theorists of the Chicago School stresses the importance of the stability of the social environment. They found that social disorganization (especially population instability) was associated with high rates of deviance. The work of the modern control theorists

(especially Travis Hirschi) suggests a possible theoretical link between community level factors and deviance.

This community control approach is an ecological level perspective directly analogous to individual level social control theory. While the perspective cannot predict which individuals will deviate, it should be able to predict deviance rates for a community. If individuals deviate because they are not strongly bonded to others in society, then it follows that factors in the community that promote social integration, that foster bonds between individuals, will tend to also foster a decrease in community deviance rates. The community control perspective posits the existence of two types of community level factors that can affect rates of deviance--community integration and environmental disorganization.

Community integration refers to the sense of cohesiveness, the feeling of belonging, what Durkheim (1951:202) termed the "intensity of collective life". When this sense of community is weak, bonds among community members and between individuals and society are also weak. Under such circumstances, rates of deviance should be higher.

Environmental disorganization refers to those factors in a community's social environment that reduce

opportunities for the formation of affiliations between individuals. In an unstable social environment, it is much more difficult for bonds among individuals to form and for bonds to operate to constrain deviance.

While the two types of community level factors are related, they are conceptually distinct and operate to foster or hinder deviance in different ways. Community integration measures the intensiveness of interactions among community members while environmental disorganization measures the opportunity for interactions of at least a certain level of quality to take place. The former has to do with the strength of interactions at the community level while the latter is concerned with the frequency of interactions of a certain quality. Thus, the former is somewhat contingent upon the latter. Integration can develop only where there is a reasonably stable social environment.

A more formal statement of the community control perspective is as follows:

Community deviance rates will be low to the extent to which the nature of the community is such that bonding among individuals and between individuals and society is fostered. Community level factors that affect deviance are of two general types: community integration (the extent to which there exist a common sense of belonging

within a community) and environmental disorganization (the degree to which a stable social environment exists within which bonds can be formed and operate effectively).

Given the logic of the community control perspective and the results of previous empirical work, it can be argued that the perspective will apply best to certain types of deviance. This perspective states that deviant behavior rates will be low to the extent to which persons in a community are bonded to one another and to the community as a whole. Ties of affection and a sense of belonging build up stakes in conformity (to use Toby's terminology) or commitment (in Hirschi's words). There is an implicit assumption in control theory that there is a certain degree of calculation going on in the mind of the individual (Stark and Crutchfield, 1981). Hirschi (1969: 88) has the potential delinquent asking himself "What will my parents think?". Toby (1957: 17) says that those with low stakes in conformity commit delinquent acts because they have little to lose. But these sorts of calculations are much less likely to take place when the deviant act is primarily impulsive in nature. The bonds that the individual has with others and the community are less likely to operate when the act is impulsive rather than well thought out.

This leads to the proposition that at the ecological level, the community will be better able to constrain forms of deviance that are essentially intentional rather than impulsive in nature. This proposition has found support in some of the previous ecological literature. Stark et al. (1980) and Crutchfield et al. (1982) both found that intentional types of crime were more strongly related to the measures of social integration that they used. This proposition will be discussed in detail in Chapter VI.

The community control perspective has certain advantages over previous propositions. The perspective has a firm theoretical basis. It is based on an integration of ideas from a variety of sources. It is clear enough to produce hypotheses that can be tested using more rigorous statistical techniques. The unit of analysis is explicit: it does not try to predict individual deviance based on community level measures. Rather, the intention is to predict deviance rates. It will be shown that the major concepts can be operationalized and that testable hypotheses can be derived.

A few earlier ecological studies also utilize concepts from social control theory (Stark et al., 1980 and Crutchfield et al., 1982). This perspective is unique relative to other formulations in that it attempts to

directly translate social control theory into ecological terms and lay out the resulting perspective in detail.

This dissertation is an elaboration of and a partial test of the community control perspective. The ultimate goal is to develop a theory of deviance that can integrate community level factors and individual level factors to explain deviance. The goal of the present analysis is more modest: to establish the important ecological factors affecting community deviance using the perspective developed above.

## IV. Testing the Community Control Perspective

This chapter outlines an empirical test of the community control perspective and introduces the remainder of the dissertation. The data to be analyzed are discussed and assessed for adequacy, major concepts are defined and operationalized, tentative propositions are put forth, and the plan of the analysis is laid out.

The data set to be used in this analysis was derived from the 1971 Census of Canada (Statistics Canada, 1974a) and the 1972 Canadian crime statistics report (Statistics Canada, 1974b). The unit of analysis is Canadian cities, towns and municipalities with a population of 10,000 or more. The process of merging the data sets produced 218 cases having essentially complete data.

### The Data

The data used in this dissertation are derived from various publications of Statistics Canada, the national agency in Canada responsible for the collection and dissemination of statistical information. Under the authority of the Minister of Industry, Trade, and Commerce, Statistics Canada (formerly known as the Dominion Bureau of Statistics) also conducts the Census of Canada every five years. The information in the present

data come from two sources within the Socio-economic Statistics Branch of Statistics Canada--the Judicial Division and the Census Division.

## The Crime Data

The Judicial Division of Statistics Canada has been collecting statistics on crime and police activities in Canada since 1920. However, in the early years data collection was rather haphazard and coverage was limited. Major reforms were brought about in 1962 by the institution of the Uniform Crime Reporting System (Statistics Canada, 1974b:iii).

Developed in a cooperative effort between Statistics Canada and the Canadian Association of Chiefs of Police, the Uniform Crime Reporting System allows for the collection of substantially more complete and accurate data on crime. Under the system, each police department is required to send monthly reports to Statistics Canada regarding a wide variety of offenses as defined in the Uniform Crime Reporting Manual (Statistics Canada, 1979). Statistical forms are sent to each department for this purpose. Police are instructed to report any offense occurring within the department's jurisdiction that becomes known to the police. Also collected is information on whether or not the offense was "cleared" by someone having been charged or otherwise cleared and any

arrests made in connection with the offense (Statistics Canada, 1974b: vii-viii)..

For offenses against the person, one offense is reported for each victim. For property offenses, one offense is reported for each separate "operation". A distinct operation is one not occurring at the same time, location, or circumstances. If several offenses occur during the course of a single incident, the most serious offense (in terms of possible penalty) is recorded (Statistics Canada, 1974b: viii-ix).

This official crime data is subject to many of the same criticism that have been applied to the Uniform Crime Report Data collected in the U.S. by the Federal Bureau of Investigation. Hindelang (1974) catalogs the shortcomings that have been suggested down through the years. Yet he still comes to the conclusion that the evidence shows that the UCR data provide robust estimates of the relative incidence of serious crime (Hindelang, 1974: 2).

The usual suggested alternative to official data is victimization data. However, debate over the relative merits of official versus victimization data is not useful at present since no national victimization studies in Canada contemporary with the other data in this dissertation exist. In fact, prior to the late 1970's, no major victimization surveys have been undertaken in Canada

with the exception of a study of burglary victims in Toronto (Waller, 1976) and a pilot study (Koenig, 1977) in British Columbia (Evans and Leger, 1979: 167). Nevertheless, problems with the Canadian crime data must be addressed and discussed.

Several writers have pointed out particular problems with Canadian crime data as presently collected and utilized. In a report prepared for the Solicitor General of Canada, Oosthoek (1978) summarizes several of these problems. The data are not collected with theory development or testing in mind and thus do not operationalize theoretical concepts well. The recording of an incident as an offense is a function of a large number of interrelated factors not just the occurrence of a crime. Crime rates are biased by such things as inconsistencies in recording procedures and differential effectiveness of police agencies. There is a need for procedures to correct for the population characteristics of an area that affect the potential pool of likely offenders (Oosthoek, 1978: 41, 60, 74).

Authors have criticized idiosyncrasies in the reporting rules. Silverman and Teevan (1975: 70-73) point out that under the rules, attempted offenses are recorded the same as completed offense with the exception of attempted homicides. Also they can find no apparent

rationale as to why in offenses against the person, one offense is counted for each victim while in the case of other offenses only one incident is recorded for each "distinct operation". Since robbery is considered a property offense under this system, if a person enters a room and takes the property of three persons, only one offense is recorded. If the person entered the room and assaulted the three occupants, three separate offenses would be recorded (Silverman and Teevan, 1975: 70). The method for handling multiple offenses can also be criticized. If a person is kidnapped, assaulted, robbed and then murdered, only the homicide would be recorded (Silverman and Teevan, 1975:73). These kinds of difficulties have led a number of critics (Silverman, 1980; Connidis, 1979; Giffen, 1971; Friedland and Mohr, 1964; McDonald, 1969) to express great doubts regarding the usefulness of the official crime data.

Despite problems there is evidence that Statistics Canada has done much to improve the quality of the crime data. Steps taken to increase the number of jurisdictions reporting have been very successful and the institution of the Uniform Crime Reporting System and has resulted in other substantial improvements (Giffen, 1971). In addition, the fact remains that for Canada (as in the U.S.) there exists no other data that are as comprehensive

and detailed. It cannot be denied that the data do have problems and that the results of analysis using these data should be interpreted cautiously.

Several researchers have suggested ways to alleviate some of the difficulties in the official measures of crime. For example, Oosthoek (1978: 17, 73) points out the need for the development of causal models that incorporate more factors into the analysis and the need for standardization on relevant demographic factors (Oosthoek, 1978: 17, 73). Ultimately, many of the measurement problems are insoluble.

The Canadian crime data have certain advantages over the comparable U.S. data (the F.B.I. UCR). More detailed information is collected on a nationwide basis. The Canadian data include eighteen Criminal Code offense classifications, several drug related offenses, violations of provincial and municipal laws, three types of criminal negligence, and a variety of serious traffic offenses. In addition, offense information in the Canadian data is available for much smaller areas than the F.B.I. reports in its Uniform Crime Report. Communities as small as 750 in population are asked to provide information to Statistics Canada.

## The Census Data

Like the United States, Canada has had much experience in conducting national censuses since in both countries, the census is used to establish the boundaries of electoral units. The 1971 census which provides the bulk of the data analyzed in this dissertation, was the first in which a "self-enumeration" procedure was used. In all but a few remote areas, householders were instructed to complete the census questionnaire for their own households. In the remote areas, canvassers were used to seek out and enumerate the population (Statistics Canada, 1974a, v1.3: 39). In the 1971 census, 97% of the population was counted using self-enumeration while 3% was enumerated by a canvasser (Statistics Canada, 1974a, v1.3: 12). While a few core questions were asked of everyone, the bulk of the census data is based on a one-third sample of households weighted to reflect the population totals for an area.

The Census of Canada collects a wide variety of information at various levels of aggregation. The major areal units at which data are collected include: incorporated cities, towns and other municipal subdivisions of 10,000 population and over; census divisions (roughly equivalent to U.S. counties); and census metropolitan areas (similarly to U.S. Standard

Metropolitan Statistical Areas). For a given area, information is reported regarding: population, sex ratio, age, marital status, education, ethnicity, religious affiliation, population mobility, family structure, income, employment, labor force participation, and housing density. In the present study, the ecological unit of analysis is the incorporated city, town, or municipal subdivision of 10,000 population.

Some information is available regarding the reliability and validity of Canadian Census data. In order to assess the extent of underenumeration, Statistics Canada carried out a reverse record check (Brackstone and Gosselin, 1974). In this procedure, the location of persons known to exist (based on 1966 census returns, birth records, or immigration registration) was traced. This information was cross-checked with the 1971 census data. Using this method, the underenumeration rate was estimated to be 1.94% or about 425,000 persons (Statistics Canada, 1974a, v1.3: 22). The Census Division also reports reliability estimates that take into consideration variance due to response error and sampling.

For the purposes of this dissertation, an important advantage of the Canadian data over U.S. census materials is that the Census of Canada has included since 1871 a question asking individuals their religious affiliation.

The questionnaire usually has included the names of major religions of Canada and a space to write in other religions. The 1971 census was the first time a category "No religion" was included as one of the standard responses.

## Definition and Operationalization of Concepts

The community control perspective states that community deviance rates will be low to the extent to which the nature of the community is such that bonding among individuals and between individuals and society is fostered.

Neither this approach nor any other can be tested unless it produces falsifiable hypotheses linking operationalized concepts. Adequate definition is a prerequisite to operationalization. The purpose of this section is to define and operationalize the major independent and dependent variables to be used in the analysis. There will also be a discussion of important control variables and alternative independent variables put forth in the literature.

### Independent Variables

The community level factors that facilitate or hinder bonding are of two general types: community integration and environmental disorganization. Each will be discussed

in turn.

Following the lead of Durkheim (1951: 201-202), community integration is defined as the sense of cohesiveness, the feeling of belonging within a community. This sense of cohesiveness will be strongest when there are shared collective sentiments, when individual consciences are an echo of group sentiments.

This definition has a degree of face validity. Hirschi (1969) has demonstrated on the individual level that those bonded to society by shared beliefs are less likely to become delinquent. Similarly, there is evidence that crime rates are lower in those societies having strongly integrated social groups. For example, the strong group orientation of Japanese society may be the source of the relatively low Japanese crime rate (Clifford, 1976: 13).

In accordance with this definition, for the purposes of this dissertation, community integration will be operationalized using the religious affiliation question from the 1971 Census of Canada. In this question, respondents are asked "What is your religion?" and are presented with response categories for 12 major religions, the "no religion" category, and the opportunity to name other religions. Following Durkheim, it is believed that membership itself, rather than particular doctrine is the

source of the integrative power of religion. Therefore, the proportion of persons in a community that claim an affiliation with any religion will be used as the measure of community integration.

Environmental disorganization was defined earlier as those factors in a community's social environment that reduce opportunities for the formation of affiliations between individuals. Environmental disorganization is a measure of the opportunities available in the community for individuals to form bonds and for those bonds to operate to control deviance.

The concept of the social network can help in the operationalization of this variable. There is research that demonstrates that affiliations among individuals in the context of various types of organizations are facilitated when there exists a set of network relations (E.g. see Stark and Bainbridge, 1980 on cults or Doyle, 1983 on occupational groups). In this sense a network refers to groupings among people with a shared identity. The sense of shared identity could be based on any of a number of factors such as working in the same place, being related, attending the same church or school, belonging to the same club, or being neighbors. But in the face of population instability, the development of and maintenance of such networks is problematic. If individuals move

often, they do not have the chance to develop more than superficial ties with others.

This conceptualization of environmental disorganization guides the selection of several indicators. A number of such measures of environmental stability are available in the 1971 Canadian Census. One question asks respondents to indicate where they were born--in the province where they now reside, in another province of Canada, or in a different country. The proportion of persons not born in the area provides a measure of the degree of in-migration to that area. In-migration is a more appropriate operationalization of environmental stability than out-migration because until substantial numbers of individuals leave an area, the network structure of the community left behind will remain intact. On the other hand, the network structures may be hard pressed to absorb an influx of residents without community ties. Similarly, it would be expected that stability will be less disrupted by persons moving around within the community than by an influx of outsiders.

Several other questions address more directly the degree to which networks exist. The family is a major source of network ties. It follows that in areas where families are not stable, network ties will be weaker. The proportion of "non-family" persons in an area is a measure

of the degree to which an area is populated by persons without family ties. In the 1971 Census of Canada, a non-family person is an individual living alone, living with unrelated individuals (e.g. a lodger), or living with relatives but not in a husband/wife or parent/unmarried child relationship. Another measure of the strength of family networks is the proportion of divorced persons living in an area. This is the ratio of divorced persons to those ever married.

Evidence is clear that with the exception of murder, rape, and aggravated assault, most crimes are committed by persons in their late teens (Conklin, 1981: 131). For persons in this age group, school is a major source of network ties to the conventional social order. It follows that areas where attachment to school at this important age is weak, the crime rate will be higher. The Census of Canada includes a proxy that can be used to measure the strength of school ties among late teens. The labor force participation rate of persons 15 to 19 is the percentage of persons in that age group who are working or seeking work. Those ages 15 to 19 in the labor force are less likely to be strongly tied into school networks.

## Dependent Variables

The major dependent variable to be tested in this analysis is crime known to the police. Of the various

offenses reported in the official crime data, only 16 of the categories of Canadian Criminal Code offenses are used. The special drug offense categories are not used because they are collected by the Royal Canadian Mounted Police on a regional basis (Statistics Canada, 1974b: A-9). Provincial, municipal, and traffic offenses vary from area to area and are thus not comparable across communities. Data on prostitution and gambling offenses are not analyzed for the same reason. Such "victimless crimes" are seldom reported by those involved so that rates are primarily a function of the degree of police enforcement.

Data from 1972 are used because the 1971 reports collapse the 16 offense categories together. The slight lag between the crime data and the 1971 census data should not affect the results. In fact, there is some rationale for including a lag because the theory implies that social integration and environmental disorganization precede high crime rates.

The particular crimes are defined in accordance with the Criminal Code of Canada (see Heather, 1976 and Statistics Canada, 1979). Crime rates are formed for each category by dividing the number of offenses known to the police by the population of the area and then multiplying the result by 100,000. The offense categories are as

follows: murder, attempted murder, manslaughter, rape, other sexual offenses, wounding, other assaults (not indecent), robbery, breaking and entering, motor vehicle theft, theft over $200, theft $200 and under, possession of stolen goods, fraud, offensive weapons violations, and other criminal code offenses.

The definitions used in the Canadian Uniform Crime Reporting System (Statistics Canada, 1979: 4.1.1-4.16.4) are described below. It should be noted that in a number of cases, the definitions of particular offenses are significantly different than corresponding offenses in the F.B.I. Uniform Crime Report.

Murder is the intentional taking of another person's life or counseling or procuring another person to take a life. It need not be planned or deliberate if it occurs during the course of another serious crime or if the victim is a police officer or prison guard carrying out his or her duties. This category includes both first and second degree murder. Attempted murder is the classification used when the murder was not successful.

Manslaughter is the classification used for other forms of homicide. It includes other culpable homicides that are not classified as murder. It does not include negligent homicides or infanticides.

A rape occurs when a male has sexual intercourse with a woman not his wife without the woman's consent or with her consent if the consent is obtained by threat or fraud. This does not include statutory rape.

Other sexual offenses is a residual category that includes a variety of indecent acts that are not rape. It includes sexual intercourse with females under the age of 16 and feeble-minded females. It also includes sexual assaults (the use of force under indecent circumstances), incest, seduction of women age 16 to 18, sexual harassment of female wards or employees, bestiality, buggery, and other indecent acts.

The category wounding is most comparable to the F.B.I UCR category of aggravated assault. It includes acts that have the intent to cause serious bodily harm with or without the use of a weapon.

The assaults (not indecent) category includes a wide variety of much less serious acts. This classification includes such things as making threatening gestures, displaying a weapon, family quarrels, schoolboy fights, resisting arrest, and other assaultive behaviors not serious enough to be called a wounding.

The Canadian system defines robbery in much the same way as does the F.B.I.. A robbery is stealing with violence, threats of violence, or while armed. It also

includes stopping mail conveyance to search through or steal mail.

Breaking and entering is essentially the same as the UCR offense called "burglary". It is the unlawful entry into a place with the intent to commit an indictable offense. This category does not include entry into motor vehicles (which is classified as theft).

Motor vehicle theft includes all offenses where a motor vehicle is taken without the consent of the owner. The category, motor vehicle includes any vehicle not powered by muscular power except boats and other vessels, aircraft, hovercraft, golf-carts, wheelchairs, garden tractors, and home snowblowers.

The categories theft over $200 and theft $200 and under include those offenses that deprive a person of their property without the use of force and not through fraud. These classifications include such offenses as thefts of bicycles, thefts of objects from within a motor vehicle, shoplifting, failure to report sales on the part of a salesman, and the misappropriation of money. Which of the two categories a given offense falls under is a function of the total value of the goods stolen.

The offense category have stolen goods refers to having in possession goods obtained by crime. It also includes unlawfully having mail, having in possession

stolen goods brought into Canada, and bringing stolen goods into Canada.

Fraud includes false pretenses, forgery, uttering and other kinds of fraud. Generally, it takes the form of fraudulently passing bad checks, forging someone's name, or using a false credit card or one belonging to someone else without permission. The category also includes criminal breach of trust, false pretenses (making a false representation in order to defraud), uttering (claiming that a false instrument is valid), sending a false telegram or other message in the name of another with the intent to defraud, falsifying documents and counterfeiting stamps.

Offensive weapons violations includes the unlawful possession, carrying or use of explosives, or restricted or prohibited weapons. A bomb threat falls under this classification if in fact a bomb was found. A bomb threat that was a hoax is a violation of "other criminal codes".

The category other criminal codes is used for all other violations of the criminal codes except traffic offenses. It includes such things as: arson, bail and probation violations, currency counterfeiting, disturbing the peace, escape, kidnapping, obstructing the police, trespassing at night, and vandalism.

In Chapter III, the argument was made that community control factors will be better able to constrain forms of deviance that are intentional rather than impulsive in nature. It was proposed that social integration and environmental disorganization will have less effect on crimes that are not the result of calculation. This argument will be further developed and "intentional" and "impulsive" crimes will be operationalized in Chapter VI.

Alternative Explanations and Control Variables

In order to assess the empirical strength of the community control perspective it is necessary to compare it with or control for alternative explanations of crime rates. The literature review in Chapter II and literature reviews by others (eg. Beasley and Antunes, 1974) suggest that alternative explanations of community crime rates generally fall into three categories: economic factors, density or crowding, and violent subcultures. Possible operationalizations of these three explanations and others will be discussed in this section.

Many of the ecological studies of deviance emphasize economic factors hypothesizing that poorer areas will have higher crime. The rationale is often stated that decreased economic opportunities push persons into criminal behavior. Median income, unemployment rates, and percent below the poverty line are often used to

operationalize economic problems (Crutchfield et al., 1982). The Canadian Census includes a number of these measures of poverty. There are three measures of income: the average income of families, the average income of household heads, and the average income of non-family persons. The unemployment rate used by the Canadian census is the number of persons seeking work over the total labor force. The percent of families below the poverty line is available for a subset of the sample of towns.

A variation of the economic explanation says that income inequality leads to higher crime rates (Blau and Blau, 1982). Inequality is usually measured using the Gini coefficient. Unfortunately the data needed to calculate this coefficient are not published in the Canadian Census.

Population density and crowding have been frequently linked to area crime rates. Density refers to the number of persons in a geographic area divided by the number of square miles in that area. The density of all communities was reported in a census special report. Crowding refers to a somewhat different concept: the extent to which persons live under crowded conditions. It has usually been operationalized in terms of the number of persons living in dwelling units that average more than one person

per room (McCarthy et al., 1975; Booth et al., 1976; Decker et al., 1982). Unfortunately, this measure is not available. The Canadian census includes the average number of persons per room in dwelling units which is used as a proxy measure.

One line of reasoning hypothesizes the existence of subcultures in cities that encourage violent behavior. In ecological analyses this has been measured by the percent nonwhite, the percent young male, the percent poor, or a dummy variable for region (South versus not the South) (McCarthy et al., 1975; Beasley and Antunes, 1974). All of these with the exception of the last are available in the Canadian Census.

Some researchers have shown that the crime rate is negatively related to the clearance rate in an area (Tittle and Logan, 1973; Gibbs, 1975; Geerken and Gove, 1977). A clearance rate is the proportion of crimes known to the police that are "solved" through an arrest or otherwise. It is believed that where police are seen as effective, criminals are "deterred" by fear of getting caught. Clearance rates from 1971 are available from the crime statistics.

## Tentative Propositions

Previous sections of this chapter have described the available data and defined and operationalized major concepts. This section puts forth several propositions that will be used to guide the data analysis in the rest of the dissertation. More specific hypotheses will be proposed in the analytic chapters.

1. Communities in Canada vary in terms of the amount of crime as well as in terms of community characteristics that may cause crime. Before the analysis can proceed, it must be demonstrated that different areas of Canada have different crime rates and differ in terms of major explanatory variables.

2. Canadian crime categories can be divided into two general types--intentional and impulsive. There is a need for a theoretically based classification of Canadian crime.

3. Measures of community integration are negatively related to rates of intentional crimes. Community level factors that measure the "sense of belonging" will be strongest in communities with low rates of intentional crime.

4. Measures of environmental disorganization are positively related to rates of intentional crime. Community level factors measuring the instability of the social environment will be strongest in communities with low rates of intentional crime.

5. Community control factors predict intentional crime rates better than alternative explanations from the literature.

## Plan of Analysis

The remainder of the dissertation represents an attempt to address the propositions listed above in a systematic fashion. Each chapter below will deal with a particular issue by putting forth one or more specific hypotheses, describing the results of an empirical analysis and discussing these results.

Chapter V is titled "The Social Geography of Canada". In this chapter, descriptive information will be presented regarding the extent and distribution of the major variables.

Chapter VI is a theoretical and empirical classification of crime. Titled "Crimes That Can Be Controlled", this chapter discusses typologies of crime,

proposes a typology based on the community control approach and uses confirmatory factor analysis to test the typology.

In Chapter VII, "Community Control and Crime", the bulk of the analytic results are presented. Important bivariate and partial correlations are presented and a regression analysis is carried out. The goal of the regression analysis is to establish the theoretically and empirically best set of predictor variables. Then it will be possible to show whether or not the community control variables predict rates of intentional crime well. Alternative theories can be tested by adding or substituting other variables into the regression equations. Path analysis is used to clarify the results of the regression analysis by discussing the interrelationships among the independent variables.

The eighth chapter summarizes the major results and discusses future directions for research in the ecological study of deviance.

## V. A Social Geography of Canada

The primary goal of this dissertation is to analyze the ecological distribution of crime in communities throughout Canada. But before this analysis can occur, it is necessary to provide some basic descriptive information. The purpose of this chapter is to report the distribution of major social factors throughout Canadian towns and cities over 10,000 in population. It is hypothesized that there is substantial variation between these cities with regard to crime and other forms of deviance as well as factors thought to affect deviance.

The chapter will begin with a discussion of the degree to which the towns and cities over 10,000 are representative of all communities in Canada. Then the question must be addressed as to whether the subsample of those towns and cities for which crime data are available are representative of all the towns and cites over 10,000 in population. Problems with the use of towns as the unit of analysis will then be discussed. Finally, the bulk of the chapter will be concerned with describing (primarily in terms of province or region) the distribution of the major analytical variables.

## Towns and Cities as the Unit of Analysis

The sample to be used in most of the analysis below consists of 218 Canadian towns and cities of over 10,000 population as of 1971. In that year, the Census of Canada shows that there were 273 towns and cities with 10,000 or more in population. However, crime data were not available for 55 of those cities.

The data are not available for a number of reasons. Crime data are not reported for towns that do not have their own police department. These towns typically contract police services from another force, notably a provincial police force or the Royal Canadian Mounted Police. While these data are reported in the provincial and Canadian totals, they are not broken down by city or town. Crime data are also not reported when the data for a town was judged by Statistics Canada to be incomplete or unreliable.

The relatively large number of towns not reporting crime data is unfortunate because of the possibility that the towns not reporting differ in important ways from those that do report. Fortunately, there are other data available to help ascertain the seriousness of this potential problem.

Table 1 compares the mean and standard deviation of a number of demographic and other variables for the sample

Table 1: Means and Standard Deviations for the Three Samples and for Canada

| | Mean (Standard Deviation) N= 218 | N= 273 | N= 55 | Canada |
|---|---|---|---|---|
| Average Population | 53510 (111733) | 51172 (106985) | 41902 (85879) | --- |
| Age Structure | | | | |
| Proportion < 15 | .296 (.047) | .302 (.047) | .325 (.043) | .296 |
| " 15-29 | .264 (.030) | .259 (.030) | .240 (.020) | .259 |
| " 30-64 | .364 (.027) | .363 (.028) | .359 (.035) | .364 |
| " 65 + | .075 (.039) | .075 (.038) | .077 (.031) | .081 |
| Average # persons per Room | .650 (.082) | .652 (.085) | .657 (.097) | .640 |
| Ethnicity | | | | |
| Proportion British | .452 (.275) | .463 (.276) | .615 (.202) | .446 |
| " French | .359 (.279) | .310 (.362) | .115 (.183) | .287 |
| " Native | .005 (.010) | .006 (.023) | .011 (.047) | .014 |
| Religious affiliation | | | | |
| Proportion Catholic | .508 (.320) | .468 (.314) | .309 (.229) | .462 |
| " with no religion | .042 (.039) | .043 (.038) | .048 (.033) | .043 |
| Economic Factors | | | | |
| Average income | $10363 (2258) | $10134 (2302) | $9222 (2272) | $9600 |
| Male unemployment | .077 (.030) | .074 (.030) | .060 (.027) | .074 |
| Marital Status | | | | |
| Proportion single | .276 (.049) | .273 (.048) | .259 (.037) | .302 |
| " married | .653 (.053) | .658 (.052) | .677 (.039) | .644 |
| " divorced | .010 (.007) | .010 (.006) | .009 (.039) | .011 |

of 218 towns, the 55 towns for which crime data were not reported, and all 274 towns over 10,000 in population. Also shown is the mean for Canada as a whole for the same variables.

It appears from this table that the 218, the 55, and the 274 towns are very similar in most respects. The population age structure is quite similar as is the proportion of persons in the various categories of marital status. However, the 55 towns tend to be those with a smaller population, a greater proportion of persons of British ancestry, a lower proportion of Catholics, and a somewhat lower average family income. In all cases, however, the mean on these variables for the sample of 218 is closer to the mean for Canada as a whole than for the sample of 55.

It appears that the sample of 218 towns is fairly representative of Canadian towns over 10,000 population and to a lesser extent of other towns in Canada. The remainder of the empirical results reported in this dissertation will be based on this sample. A complete list of the towns in the sample and the 1971 population is found in Appendix 1. The towns in the sample are distributed by province as shown in Table 2. None of the towns in the Yukon or Northwest Territories reported crime data.

Table 2: Distribution of Towns in the Sample by Province

| | |
|---|---|
| Newfoundland | 2 |
| Prince Edward Island | 1 |
| Nova Scotia | 6 |
| New Brunswick | 7 |
| Quebec | 83 |
| Ontario | 59 |
| Manitoba | 12 |
| Saskatchewan | 7 |
| Alberta | 7 |
| British Columbia | 34 |
| TOTAL | 218 |

Towns of over 10,000 population are used because this unit of analysis is the smallest for which adequate data are available. However, the choice of towns of this size as the unit of analysis has some problematic aspects. It is not clear that the kind of social processes described in the community control perspective operate at the city level. Some would say that a city with a population of one million can not be described as integrated and that a smaller ecological unit such as the neighborhood should be used. On the other hand, many integrative networks transcend the neighborhood. Transportation resources allow people to work, attend school, or join organizations outside of their neighborhood and even in other cities.

This brings up another problem--that the town or city may be too small a unit of analysis. As was mentioned in Chapter II, several persons have argued that it is difficult to calculate accurate crime rates for cities because the denominator tends to be underestimated (Gibbs and Erickson, 1976; Stafford and Gibbs, 1980). The resident population of a city is probably much smaller than the number of persons who are potential crime victims. Many who live outside the city work, shop, or spend leisure time in the city and thus can appear in the numerator but not the denominator of the crime rate. Gibbs and Erickson (1976) suggest the use of SMSA's as the

preferred unit of analysis because the SMSA includes the areas surrounding the city that are economically linked to the city. Ultimately, there is no solution to this problem given the available data.

## The Characteristics of Canadian Cities

The following sections report statistics describing the major variables in the analysis. Regional trends will be noted and towns or cities scoring especially high or low on the particular variable will be cited. For reporting purposes, the 10 provinces will be divided into five regions: 1. the Maritime Provinces (Newfoundland, Prince Edward Island, New Brunswick); 2. Quebec (includes only Quebec); 3. Ontario; 4. the Prairie Provinces (Manitoba, Saskatchewan, Alberta); and 5. British Columbia. Descriptive statistics on the Maritime region should be viewed with caution because they are based on only 16 cases.

### Population, Age, Sex Ratio, Ethnicity

One factor on which the sample towns show much diversity is the size of population. They range in population from just over 10,000 (Sarnia Township, Ontario) to well over one million (Montreal, Quebec) but the mean population is 53,510. Most of the population of Canada lives in Ontario, Quebec, and British Columbia and

nearly all of the larger cities are found in these provinces. In fact, over half the population of Canada resides in a small area of the extreme southern ends of Quebec and Ontario (Statistics Canada, 1973: 1). The mean and standard deviation of population size is shown for each of the regions in Table 3.

Also shown in Table 3 are descriptive statistics for major age groups, the sex ratio, and ethnic groups. The regions are very similar in terms of the proportion of persons falling within the four broad age groups presented. The proportion age 15 to 25 is presented separately because persons within this group are the most likely to be involved in crime. But again, the regions are very similar.

The regional distribution with regard to the sex ratio follows a definite but not especially dramatic pattern. The farther west, the slightly greater proportion of males relative to females in the population. The excess of men over women is substantial in a few rather remote towns in the Western provinces. Prince Rupert with a sex ratio of 1.138 and Kitimat (1.160) are both in the extreme northwest in British Columbia while Thompson (1.280) is in Manitoba.

Not surprisingly, there is striking regional variation in the ethnic composition of towns and cities.

Table 3: Descriptive Statistics For Population Size, Age, Sex Ratio, and Ethnicity

| Variable | Region | Mean | Std. Dev. | Maximum | Minimum |
|---|---|---|---|---|---|
| Population Size | Maritime (n=16) | 38,294 | 34,505 | 122,030 | 10,385 |
| | Quebec (n=83) | 45,537 | 134,169 | 1,214,375 | 10,740 |
| | Ontario (n=59) | 66,584 | 108,009 | 713,135 | 10,030 |
| | Prairie (n=26) | 73,298 | 114,873 | 438,425 | 11,845 |
| British | Columbia (n=34) | 42,319 | 72,839 | 426,270 | 10,040 |
| Proportion less than Age 15 | | | | | |
| | Mar. | .30 | .04 | .41 | .25 |
| | Que. | .30 | .05 | .40 | .18 |
| | Ont. | .29 | .04 | .39 | .21 |
| | Pra. | .30 | .04 | .41 | .22 |
| | B.C. | .28 | .06 | .37 | .17 |
| Proportion Age 15 to 29 | | | | | |
| | Mar. | .27 | .02 | .30 | .24 |
| | Que. | .28 | .03 | .32 | .19 |
| | Ont. | .26 | .02 | .35 | .21 |
| | Pra. | .26 | .04 | .40 | .20 |
| | B.C. | .25 | .03 | .31 | .18 |
| Proportion Age 30 to 64 | | | | | |
| | Mar. | .35 | .02 | .37 | .31 |
| | Que. | .36 | .03 | .44 | .30 |
| | Ont. | .37 | .02 | .41 | .33 |
| | Pra. | .36 | .03 | .42 | .23 |
| | B.C. | .37 | .03 | .45 | .34 |
| Proportion Age 65 and over | | | | | |
| | Mar. | .08 | .03 | .14 | .01 |
| | Que. | .06 | .03 | .17 | .01 |
| | Ont. | .08 | .03 | .15 | .03 |
| | Pra. | .08 | .03 | .14 | .00 |
| | B.C. | .10 | .06 | .30 | .01 |
| Proportion Age 15 to 24 | | | | | |
| | Mar. | .21 | .01 | .22 | .19 |
| | Que. | .19 | .03 | .24 | .12 |
| | Ont. | .18 | .02 | .24 | .13 |
| | Pra. | .19 | .02 | .27 | .14 |
| | B.C. | .18 | .02 | .22 | .14 |

Table 3 (continued)

| | | | | |
|---|---|---|---|---|
| Sex Ratio #M/#F | | | | |
| Mar. | .96 | .05 | 1.09 | .87 |
| Que. | .97 | .05 | 1.10 | .81 |
| Ont. | .98 | .05 | 1.07 | .89 |
| Pra. | .99 | .07 | 1.28 | .92 |
| B.C. | 1.01 | .07 | 1.16 | .84 |
| Proportion of British Ancestry | | | | |
| Mar. | .72 | .24 | .95 | .09 |
| Que. | .14 | .16 | .69 | .01 |
| Ont. | .63 | .15 | .87 | .22 |
| Pra. | .47 | .09 | .64 | .23 |
| B.C. | .60 | .10 | .86 | .35 |
| Proportion of French Ancestry | | | | |
| Mar. | .20 | .26 | .88 | .01 |
| Que. | .78 | .24 | .99 | .04 |
| Ont. | .11 | .15 | .69 | .02 |
| Pra. | .08 | .07 | .36 | .02 |
| B.C. | .04 | .01 | .08 | .02 |
| Proportion Jewish | | | | |
| Mar. | .00 | .00 | .01 | .00 |
| Que. | .02 | .09 | .75* | 0 |
| Ont. | .01 | .01 | .04 | 0 |
| Pra. | .02 | .05 | .27 | 0 |
| B.C. | .00 | .00 | .02 | 0 |
| Proportion Native | | | | |
| Mar. | .00 | .00 | .01 | 0 |
| Que. | .00 | .00 | .01 | 0 |
| Ont. | .00 | .00 | .02 | 0 |
| Pra. | .01 | .01 | .04 | .00 |
| B.C. | .01 | .02 | .11 | .00 |
| Proportion Black | | | | |
| Mar. | .00 | .00 | .01 | 0 |
| Que. | .00 | .00 | .00 | 0 |
| Ont. | .00 | .00 | .01 | 0 |
| Pra. | .00 | .00 | .00 | 0 |
| B.C. | .00 | .00 | .00 | 0 |

*Cote-St. Luc C., Que.

Those of British ancestry are the most numerous in all regions except Quebec where those of French extraction dominate. The Prairie provinces are unusual in that they have a greater mixture of ethnic groups.

## Deviance

In addition to information on crime, the suicide rate is available for some of the cities as an alternative measure of deviance. Suicide is measured using the age standardized mortality rate by suicide for males and females. Descriptive statistics on suicide and crime are reported in Table 4.

The suicide measures show a regional pattern. The Western provinces (especially British Columbia) tend to have the highest rates of male suicide while the Maritime provinces have the lowest. Female suicide is not so consistent.

This pattern is similar for the crime measures. In general, the farther west the region, the higher the crime rate for most of the offenses. If we ignore the statistics describing the Maritime provinces (which are based on only 16 cases) this pattern holds true for murder, attempted murder, manslaughter, rape, breaking and entering, car theft, theft less than $200, weapons offenses, and other criminal code violations. It is true to a lesser extent for assault, theft greater than $200,

Table 4: Descriptive Statistics For Suicide & Crime Rates

| Variable | Region | Mean | Std. Dev. | Maximum | Minimum |
|---|---|---|---|---|---|
| *Standardized mortality rate- suicide males | | | | | |
| | Maritime | 69.57 | 27.45 | 109.49 | 36.63 |
| | Quebec | 78.05 | 35.19 | 176.99 | 10.49 |
| | Ontario | 97.03 | 45.86 | 215.05 | 10.36 |
| | Prairie | 111.44 | 40.29 | 171.18 | 45.42 |
| | British Columbia | 130.55 | 50.33 | 250.00 | 60.52 |
| *Standardized mortality rate- suicide females | | | | | |
| | Mar. | 52.02 | 42.36 | 104.67 | 0 |
| | Que. | 74.08 | 39.74 | 198.02 | 0 |
| | Ont. | 115.70 | 55.80 | 228.14 | 33.33 |
| | Pra. | 63.65 | 36.32 | 123.46 | 0 |
| | B.C. | 196.12 | 98.11 | 361.45 | 63.09 |
| Murder Rate | | | | | |
| | Mar. | .31 | .91 | 3.37 | 0 |
| | Que. | .97 | 2.15 | 8.94 | 0 |
| | Ont. | .72 | 1.51 | 6.04 | 0 |
| | Pra. | 1.43 | 2.05 | 8.21 | 0 |
| | B.C. | 1.62 | 2.68 | 8.34 | 0 |
| Attempted Murder Rate | | | | | |
| | Mar. | .36 | .80 | 2.46 | 0 |
| | Que. | 1.00 | 2.09 | 8.49 | 0 |
| | Ont. | 1.04 | 2.06 | 10.92 | 0 |
| | Pra. | 1.32 | 2.24 | 7.28 | 0 |
| | B.C. | 2.64 | 5.34 | 25.41 | 0 |
| Manslaughter Rate | | | | | |
| | Mar. | .75 | 2.17 | 7.95 | 0 |
| | Que. | .09 | .72 | 6.51 | 0 |
| | Ont. | .10 | .33 | 1.63 | 0 |
| | Pra. | .17 | .64 | 3.14 | 0 |
| | B.C. | .26 | 1.45 | 8.47 | 0 |
| Rape Rate | Mar. | 2.27 | 4.36 | 15.67 | 0 |
| | Que. | 2.30 | 3.97 | 19.54 | 0 |
| | Ont. | 4.71 | 4.89 | 19.07 | 0 |
| | Pra. | 4.37 | 4.55 | 13.23 | 0 |
| | B.C. | 7.29 | 8.29 | 34.89 | 0 |

Table 4 (continued)

| | | | | |
|---|---|---|---|---|
| Other Sex Offences Rate | | | | |
| Mar. | 40.30 | 34.85 | 103.28 | 0 |
| Que. | 53.30 | 51.41 | 251.01 | 0 |
| Ont. | 43.47 | 31.74 | 142.11 | 0 |
| Pra. | 51.45 | 38.21 | 126.28 | 0 |
| B.C. | 51.47 | 38.87 | 193.27 | 0 |
| Woundings Rate | | | | |
| Mar. | 2.43 | 4.02 | 11.47 | 0 |
| Que. | 4.26 | 11.37 | 71.64 | 0 |
| Ont. | 5.35 | 9.09 | 59.46 | 0 |
| Pra. | 8.63 | 10.29 | 38.66 | 0 |
| B.C. | 5.50 | 9.22 | 38.12 | 0 |
| Assault Rate | | | | |
| Mar. | 327.32 | 183.47 | 664.65 | 71.51 |
| Que. | 110.81 | 102.84 | 570.56 | 0 |
| Ont. | 467.16 | 358.99 | 1464.97 | 69.79 |
| Pra. | 416.90 | 264.42 | 952.42 | 53.98 |
| B.C. | 541.19 | 301.69 | 1143.58 | 43.42 |
| Robbery Rate | | | | |
| Mar. | 21.26 | 33.96 | 140.95 | 0 |
| Que. | 44.93 | 41.40 | 201.37 | 0 |
| Ont. | 26.57 | 31.51 | 217.07 | 0 |
| Pra. | 42.67 | 51.79 | 182.73 | 0 |
| B.C. | 40.96 | 70.81 | 336.17 | 0 |
| Breaking and Entering Rate | | | | |
| Mar. | 707.83 | 301.77 | 1175.12 | 40.10 |
| Que. | 677.54 | 444.75 | 1963.34 | 23.46 |
| Ont. | 765.07 | 397.92 | 2241.60 | 256.09 |
| Pra. | 893.61 | 469.71 | 2237.60 | 279.03 |
| B.C. | 1273.52 | 512.62 | 2587.76 | 408.33 |
| Auto Theft Rate | | | | |
| Mar. | 278.66 | 220.41 | 731.26 | 0 |
| Que. | 265.36 | 191.20 | 871.55 | 5.81 |
| Ont. | 303.46 | 188.38 | 1105.96 | 64.59 |
| Pra. | 365.55 | 171.94 | 814.55 | 49.24 |
| B.C. | 411.13 | 326.18 | 1462.75 | 49.00 |
| Theft >$200 Rate | | | | |
| Mar. | 428.03 | 304.46 | 1399.66 | 69.05 |
| Que. | 741.05 | 452.60 | 2463.34 | 44.69 |
| Ont. | 613.06 | 352.13 | 1933.72 | 160.71 |
| Pra. | 751.31 | 350.39 | 1609.87 | 114.90 |
| B.C. | 910.02 | 498.59 | 3016.67 | 311.86 |

Table 4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| Theft <$200 Rate | | | | | |
| | Mar. | 1527.48 | 756.79 | 2736.58 | 8.91 |
| | Que. | 804.20 | 479.34 | 2474.63 | 0 |
| | Ont. | 1968.75 | 947.23 | 6128.71 | 619.58 |
| | Pra. | 2275.10 | 837.65 | 4331.77 | 336.48 |
| | B.C. | 2485.91 | 1157.08 | 5007.53 | 673.00 |
| Possession of Stolen Goods | | | | | |
| | Mar. | 46.13 | 43.99 | 165.91 | 0 |
| | Que. | 13.25 | 26.14 | 169.91 | 0 |
| | Ont. | 69.75 | 77.70 | 544.91 | 0 |
| | Pra. | 55.78 | 45.61 | 159.18 | 0 |
| | B.C. | 100.30 | 53.14 | 274.16 | 10.85 |
| Fraud Rate | Mar. | 248.70 | 262.05 | 976.05 | 0 |
| | Que. | 126.71 | 106.66 | 568.52 | 0 |
| | Ont. | 376.93 | 262.02 | 1556.51 | 65.27 |
| | Pra. | 545.73 | 235.35 | 1148.95 | 57.45 |
| | B.C. | 521.71 | 342.54 | 1187.15 | 138.07 |
| Weapons Offence Rate | | | | | |
| | Mar. | 23.45 | 21.46 | 67.40 | 0 |
| | Que. | 6.52 | 10.72 | 47.82 | 0 |
| | Ont. | 34.89 | 39.13 | 237.08 | 0 |
| | Pra. | 41.25 | 40.31 | 185.73 | 0 |
| | B.C. | 47.68 | 43.56 | 189.24 | 0 |
| Other Criminal Code Rate | | | | | |
| | Mar. | 1091.98 | 616.98 | 2233.99 | 266.33 |
| | Que. | 590.36 | 542.41 | 3254.67 | 0 |
| | Ont. | 1360.66 | 779.36 | 3539.72 | 90.87 |
| | Pra. | 1499.55 | 635.34 | 2650.92 | 170.23 |
| | B.C. | 1975.52 | 1009.74 | 4242.96 | 301.62 |

*Note: Suicide rates are based on a lesser number of cases than the crime variables. Maritimes-N=7, Quebec-N=32, Ontario-N=30, Prairie-N=14, British Columbia-N=12.

and possession of stolen goods. For all of these offenses, the average crime rate is highest in British Columbia.

Exceptions to this pattern can be seen for a few offenses. The sex offense and robbery rates are highest in Quebec while the wounding and fraud rates are highest in the Prairie provinces.

These statistics appear to indicate that in most cases, crime and other forms of deviance are a more severe problem in Western towns relative to the rest of Canada.

Religious Affiliation and Denominations

Table 5 shows descriptive statistics for regions with regard to religious affiliation and denominations.

The proportion of persons claiming no religious affiliation follows the same pattern noted above with regard to most crime rates. Towns in the Eastern provinces are characterized by a substantially higher proportion of persons who declare an affiliation with a religion. While about 99% of persons in towns in Quebec claim a religion, only 88% of persons in British Columbia do so. The 50 top ranked towns in terms of religious affiliation are all in Quebec or the Maritime provinces. On the other hand, the lowest 30 are all in British Columbia. Vancouver, B.C. has the lowest religious affiliation in all of Canada with about 17% claiming no

Table 5: Descriptive Statistics For Religious Affiliation and Denomination

| Variable | Region | Mean | Std.Dev. | Maximum | Minimum |
|---|---|---|---|---|---|
| Total claiming an affiliation with any religion | | | | | |
| | Maritime | .98 | .01 | 1.00 | .95 |
| | Quebec | .99 | .01 | 1.00 | .92 |
| | Ontario | .96 | .02 | .99 | .92 |
| | Prairie | .95 | .02 | .97 | .91 |
| | B.C. | .88 | .03 | .94 | .83 |
| Catholic | Mar. | .49 | .21 | .94 | .15 |
| | Que. | .85 | .19 | .99 | .11 |
| | Ont. | .33 | .16 | .83 | .10 |
| | Pra. | .25 | .09 | .56 | .16 |
| | B.C. | .18 | .06 | .38 | .08 |
| Anglican | Mar. | .15 | .09 | .31 | .02 |
| | Que. | .04 | .06 | .24 | .00 |
| | Ont. | .16 | .05 | .26 | .05 |
| | Pra. | .12 | .03 | .19 | .07 |
| | B.C. | .19 | .06 | .40 | .09 |
| United Church | Mar. | .18 | .08 | .40 | .02 |
| | Que. | .04 | .05 | .25 | .00 |
| | Ont. | .22 | .08 | .39 | .04 |
| | Pra. | .28 | .06 | .38 | .13 |
| | B.C. | .26 | .03 | .31 | .18 |

religion.

The proportion of person in a town claiming a religious affiliation is used as the measure of community integration. On the basis of the regional description, it is clear that the towns in the West are less integrated than those in the East.

This geographic pattern in the distribution of the "non-affiliated" has been noted by others. Veevers and Cousineau (1980) documented the marked east/west differential. They found that the differential could not be accounted for by regional variations in ethnicity, age and sex structure, or degree of urbanization (Veevers and Cousineau, 1980: 206-207).

The United States and Canada differ considerably in terms of what Stark and Bainbridge (1982) call "religious economies". Canada exhibits much more denominational concentration--far fewer denominations account for the vast majority of church members. It would take the 21 largest U.S. denominations to equal the proportion of church members accounted for by the three largest denominations in Canada (Westhaus, 1976). Three churches account for over 75% of the population of Canada in 1971 claimed affiliation--the Roman Catholic Church, the Anglican Church, and the United Church.

The descriptive statistics on denomination reported in Table 5 are not surprising. Towns in Quebec are overwhelmingly Catholic and the proportion of Catholics is lowest in towns in British Columbia and the Prairie provinces. The proportion of Catholics is quite high in towns in the Maritime provinces. The Anglican Church has its most affiliates in towns in British Columbia while the United church is most strong in the Prairie provinces.

## Environmental Disorganization

Environmental disorganization was operationalized using four measures: the in-migration variable, the proportion of non-family persons, the proportion divorced, and the labor force participation rate of persons 15 to 19. Descriptive statistics regarding these measures are in Table 6.

The in-migration measure has three parts: the proportion of persons in a town that were born in Canada, the proportion of persons in a town that were born in the province in which they now live, and the proportion of persons in a town that were born in Canada but not in the province in which they now live. Each of the parts show the same regional pattern that has been observed for several other variables. The population in the West (especially British Columbia) tend to be less stable in terms of the influx of outsiders.

Table 6: Descriptive Statistics For Inmigration, Family Stability, and Youth Labor Force Participation

| Variable | Region | Mean | Std. Dev. | Maximum | Minimum |
|---|---|---|---|---|---|
| Proportion Born in Canada | Maritimes | .95 | .02 | .98 | .91 |
| | Quebec | .93 | .08 | 1.00 | .69 |
| | Ontario | .82 | .08 | .94 | .53 |
| | Prairie | .84 | .04 | .89 | .75 |
| | British Columbia | .78 | .05 | .87 | .66 |
| Proportion Born in the Province of Residence | Mar. | .80 | .14 | .94 | .32 |
| | Que. | .88 | .12 | .99 | .50 |
| | Ont. | .71 | .09 | .88 | .45 |
| | Pra. | .67 | .08 | .77 | .46 |
| | B.C. | .48 | .06 | .57 | .33 |
| Proportion Born in Canada but not in the Province of Residence | Mar. | .16 | .13 | .59 | .04 |
| | Que. | .06 | .06 | .31 | .01 |
| | Ont. | .11 | .05 | .27 | .04 |
| | Pra. | .18 | .07 | .41 | .09 |
| | B.C. | .30 | .05 | .45 | .23 |
| Proportion of Non Family Persons | Mar | .12 | .04 | .19 | .05 |
| | Que. | .09 | .04 | .25 | .03 |
| | Ont. | .11 | .04 | .25 | .04 |
| | Pra. | .12 | .04 | .20 | .04 |
| | B.C. | .12 | .05 | .27 | .05 |
| Proportion Divorced | Mar | .01 | .00 | .02 | .00 |
| | Que. | .01 | .00 | .02 | .00 |
| | Ont. | .01 | .00 | .02 | .00 |
| | Pra. | .01 | .01 | .03 | .01 |
| | B.C. | .02 | .01 | .04 | .04 |
| Labor Force Participation among Persons 15-19 | Mar. | 37.81 | 6.21 | 46.10 | 23.10 |
| | Que. | 33.86 | 5.46 | 52.90 | 21.70 |
| | Ont. | 45.64 | 4.46 | 57.90 | 36.90 |
| | Pra. | 48.85 | 5.35 | 62.10 | 35.80 |
| | B.C. | 49.62 | 4.48 | 58.20 | 41.90 |

The same pattern characterizes the other measures of environmental disorganization. Though the regional differences in proportion of non-family persons and proportion divorced are not large, again the towns in the Western provinces tend to have a higher proportion of persons in these situations. Likewise, the labor force participation rate for those 15 to 19 is markedly higher in towns in the West.

The descriptive statistics show that Western Canada tends to exhibit a greater degree of environmental disorganization (as operationalized in this dissertation) than does the rest of the country.

Alternative Explanations and Control Variables

The descriptive statistics for a number of variables suggested by alternative theories in Chapter 4 are shown in Table 7. Only brief comments will be made.

The measures of income status show that persons in Ontario tend to have the highest incomes while those in the Maritime provinces have the lowest. The lowest unemployment rates are also found in Ontario. Density tends to be lower in the West as is the average number of persons per room. Clearance rates are highest in the Prairie provinces and lowest in British Columbia.

Table 7: Descriptive Statistics For the Control Variables

| Variable | Region | Mean | Std. Dev. | Maximum | Minimum |
|---|---|---|---|---|---|
| Average Income of Non Family Person | | | | | |
| | Maritime | $3280 | $493 | $3985 | $2667 |
| | Quebec | $3568 | $776 | $6807 | $2242 |
| | Ontario | $3867 | $554 | $5189 | $2827 |
| | Prairie | $3361 | $674 | $5701 | $1996 |
| | British Columbia | $3852 | $691 | $5408 | $2599 |
| Average Income of Head of Household | | | | | |
| | Mar. | $7095 | $769 | $8316 | $5335 |
| | Que. | $8432 | $2897 | $21027 | $4990 |
| | Ont. | $8447 | $1233 | $11754 | $6532 |
| | Pra. | $7758 | $1094 | $9898 | $5941 |
| | B.C. | $8227 | $1588 | $14789 | $6237 |
| Average Income of Economic Families | | | | | |
| | Mar. | $8958 | $894 | $10569 | $6890 |
| | Que. | $10589 | $3150 | $25377 | $6942 |
| | Ont. | $10747 | $1280 | $14322 | $8480 |
| | Pra. | $9815 | $1147 | $11921 | $7760 |
| | B.C. | $10227 | $1734 | $17248 | $8123 |
| *% Low income Families | Mar. | 18.15 | 5.15 | 23.60 | 12.10 |
| | Que. | 14.46 | 5.85 | 24.20 | 4.50 |
| | Ont. | 10.17 | 3.76 | 20.40 | 3.70 |
| | Pra. | 13.98 | 4.07 | 22.70 | 6.00 |
| | B.C. | 14.44 | 4.59 | 21.50 | 7.20 |
| Unemployment Rate-males | Mar. | .08 | .02 | .13 | .03 |
| | Que. | .09 | .04 | .20 | .03 |
| | Ont. | .06 | .02 | .10 | .03 |
| | Pra. | .06 | .01 | .09 | .03 |
| | B.C. | .08 | .02 | .12 | .03 |
| Unemployment Rate-females | Mar. | .09 | .03 | .17 | .07 |
| | Que. | .12 | .03 | .19 | .06 |
| | Ont. | .09 | .02 | .14 | .06 |
| | Pra. | .09 | .02 | .12 | .07 |
| | B.C. | .11 | .02 | .16 | .08 |

Table 7 (continued)

| | | | | |
|---|---|---|---|---|
| Population Density | | | | |
| Mar. | 3124.03 | 2081.40 | 7391.11 | 474.64 |
| Que. | 4361.96 | 4666.85 | 22779.88 | 46.96 |
| Ont. | 3370.40 | 3910.03 | 19891.15 | 95.63 |
| Pra. | 2955.42 | 2347.80 | 9306.17 | 326.88 |
| B.C. | 2640.16 | 2591.26 | 9765.32 | 117.76 |
| Average Number of Persons per Room | | | | |
| Mar. | .67 | .07 | .80 | .56 |
| Que. | .71 | .08 | .86 | .43 |
| Ont. | .61 | .05 | .74 | .52 |
| Pra. | .63 | .06 | .80 | .53 |
| B.C. | .60 | .06 | .73 | .45 |
| Clearance Rate | | | | |
| Mar. | .33 | .15 | .65 | .17 |
| Que. | .25 | .20 | 1.00 | .02 |
| Ont. | .22 | .08 | .37 | .07 |
| Pra. | .27 | .13 | .72 | .08 |
| B.C. | .21 | .07 | .36 | .08 |

*Note: % Low income families was based on fewer cases than the other variables in the table.
Maritimes-N=4, Quebec-N=53, Ontario-N=37, Prairie-N=14, British Columbia-N=16.

## Conclusion

The descriptive analysis above shows a substantial variation in the major variables of interest. But more importantly, there is a consistent pattern with regard to a number of variables. The farther West one goes, the higher the rates of most forms of deviance. Likewise, the degree of community integration is lower in the West and the degree of environmental disorganization is higher. This finding parallels what earlier analysis has found regarding regional patterns in the United States (Stark et al., 1980; 1982) Further analysis is needed to discern what it is about towns in the West that seems to allow higher rates of deviance.

## VI. Crimes That Can Be Controlled: Towards a Typology of Crime

The development of classification schemes has a long history in the social sciences. The goal of this chapter is to develop a theoretically based and empirically verified typology of Canadian crime. Previous efforts at crime typology will be reviewed and a crime typology based on the community control perspective will be proposed and tested. A distinction between intentional and impulsive crime will be made not for the sake of data reduction but rather to further specify the community control perspective.

A seemingly obvious yet often ignored fact is that all crime is not the same. There are tremendous qualitative differences between computer fraud and forcible rape or between homicide and car theft. It is unlikely that every action that is classified as a crime has the same cause. Therefore, it is unrealistic to expect a single theory of crime to be able to explain equally well such diverse offenses.

Criminologists have come to recognize that crime is not a unitary phenomenon and usually avoid using the F.B.I. Total Crime Index or some other single index as the dependent variable. It is now common to concentrate an

analysis on a single offense or to report results separately for different types of crime[1]. But as the number of dependent variables increases, the potential for seemingly contradictory results also increases. The researcher often is put in the position of trying to make sense of the analysis by devising post hoc explanations as to why the independent variable works well with some offenses but not others.

A much preferable strategy is to predict on the basis of theory and previous empirical results which crimes the theory will explain. This implies the need for a theoretically based typology of crime--a classification of offenses into relevant types on the basis of a theory of crime. Crimes should be divided into several groups assumed to have common etiological roots. While a given theory cannot be expected to explain all crime, an adequate theory should be able to predict what crimes it will explain.

A well drawn typology of crime helps to organize and make sense of diverse results but it is important to remember the limitations of the typological approach. Although a typology may be based on a theory or imply one, typologies are not theories. A theory is a causal statement linking concepts not a classification system. Also, the use of an inadequate classification system leads

one to ignore important distinctions between factors put in the same category and overemphasize the differences between categories. Thus, one can wind up distorting reality in an effort to simplify reality (Conklin, 1981: 15-16). Finally, a typology can be based on all sorts of factors (e.g. offenses can be divided into categories based on the number of letters in the offense name). For our purposes, the most useful and relevant typology will have something to say about the etiology of crime.

## Typologies of Crime

The development of typologies was a major criminological enterprise during the 1950's (Gibbons, 1975; 1979). However, most of the focus has been on typologies of offenders rather than of offenses. Typologies of offenders and criminal careers are not directly relevant to the present analysis[2]. Crime typologies are more important and therefore will be discussed in some detail.

Offense typologies address a different question than do offender typologies. While offender classifications focus on the individual, offense typologies try to classify crimes. Ecological analysis seeks to discover the causes of a community's crime rates rather than the reasons why a particular individual is more or less likely

to become a criminal. This leads to a greater emphasis on crime typologies rather than criminal or career typologies.

The most obvious and often used distinction is between "crimes of violence" and "crimes against property", the subcategories used by the F.B.I. Uniform Crime Report. Under UCR definitions, violent crime includes murder, manslaughter, forcible rape, robbery, and aggravated assault. The property crimes are burglary, larceny-theft, motor vehicle theft, and (as of 1979) arson (U.S. Department of Justice, 1981: 62). A somewhat different classification was used for the National Crime Survey. In the NCS, primary offense categories are divided into "household crimes" and "personal crimes". Household crimes include household burglary, household larceny, and motor vehicle theft. The personal crimes are subdivided into personal crimes of violence (rape, personal robbery and assault) and the personal crimes of theft (personal larceny) (U.S. Dept. of Justice, 1981: 102, 155).

These classifications are based on whether the supposed object of the criminal act is to harm someone directly (personal or violent crimes) or to acquire property (the property or household crimes). But this distinction is often hard to make. A case in point is the

crime of robbery. While the F.B.I. and the NCS call it a violent or personal crime, Statistics Canada calls it a property crime even though all three agencies use basically the same definition. But more importantly, a number of empirical studies (to be reviewed below) show that the violent/property distinction is not relevant to analyses of the causes of crime.

Offenses can also be classified on the basis of seriousness (e.g. Sellin and Wolfgang, 1964) or in terms of legal definition (e.g. felony versus misdemeanor). In addition, almost every textbook on criminology divides crimes into categories for ease of presentation (eg. Glaser, 1978). But again, such classifications are probably not important in the search for factors that cause crime.

Perhaps the most detailed and well thought out typology of crime is that devised by Clinard and Quinney (1967; 1973). Their typology is constructed on the basis of four characteristics: "(1) the criminal career of the offender, (2) the extent to which the behavior has group support, (3) correspondence between criminal behavior and legitimate behavior, and (4) societal reaction" (Clinard and Quinney, 1967: 14).

The "criminal career" refers to the degree to which crime is the individual's life work and involves the

individual's self concept and self identification as a criminal. "Group support" includes the degree to which the individual's behavior is supported by group norms, the individual's "differential association" with criminal norms, the social roles the person plays and his or her integration into social groups. The "correspondence" is the extent to which the behavior is in conflict with the valued goals and means of conventional society. The "societal reaction" is the degree to which informally or formally the behavior elicits a reaction (Clinard and Quinney, 1967: 14-15).

When put together, these characteristics yield eight types of crime: (1) violent personal crime--murder, assault, and forcible rape; (2) occasional property crime--some auto theft, shoplifting, check forgery, and vandalism; (3) occupational crime--embezzlement, fraudulent sales, false advertisement, price fixing, fee splitting, black market activity, prescription violation, and antitrust violation; (4) political crime--treason, sedition, espionage, sabotage, military draft violations, war collaboration, radicalism, and some forms of protest; (5) public order crime--drunkenness, vagrancy, disorderly conduct, prostitution, homosexuality, traffic violation, and drug addiction; (6) conventional crime--robbery, larceny, burglary, and gang theft; (7) organized crime--

racketeering, organized prostitution, organized gambling, and control of narcotics; (8) professional crime--confidence games, shoplifting, pickpocketing, forgery, and counterfeiting (Clinard and Quinney, 1967: 15-18).

Though it is possible to dispute the placement of some of the crimes, the Clinard/Quinney typology appears to be a very comprehensive and detailed classification of crimes. However, it is not that useful for the purposes of the present analysis. As has been stated, the most useful typology will allow the researcher to specify in advance which crimes a theory should be able to predict. The choice of characteristics on which to base the typology is a function of Clinard and Quinney's perception of what are the important differences between and similarities among crime types. While the Clinard/Quinney typology serves their purposes well, they admit that the choice of characteristics is rather arbitrary and that other typologies will be needed for other purposes.

All of this implies the need for a typology generated by the particular theory to be tested. Actually, this is going beyond typology to a theoretical reconceptualization of crime. The primary purpose of such a reconceptualization is to specify the conditions under which a given theory will apply.

## Typologies of crime in ecological analysis

Recent ecological analyses of crime have sometimes used classifications of crime to organize their presentation or to explain seemingly inconsistent results. A review of several of theses studies can suggest possible reconceptualizations of crime.

A number of the ecological analyses did not start with any preconceived notions about which crimes should be able to be explained by the variables used. Stark et al. (1980) and Crutchfield et al. (1982) both found that social integration predicted burglary, larceny, and rape better than homicide, assault, auto theft and robbery. The authors of each of these studies developed somewhat similar explanations to account for their results. Both imply that the pattern of correlations is a function of the extent to which the particular crime is amenable to being affected by the nature of the social relations in a community. Stark et al. (1980: 47) suggest (but do not develop in detail) the argument that "impulsive" crimes probably will not be negatively related to social integration because they do not represent a sustained pattern of deviance that is easily regulated by bonds to the moral order. Crutchfield et al. (1982: 472) argue with Geerken and Gove (1977) that social control mechanisms will operate most effectively on rape and most

property crimes because such crimes are primarily "rational" in the sense of being thought out and planned. In contrast, murder and assault often take place rather spontaneously. In another paper, Stark and Crutchfield (1981) elaborated on the distinction between the two types of crime and provided empirical support for the classification using factor analysis.

Several of the ecological analyses devised typologies empirically. Harries (1974: 46) used an exploratory factor analysis to divide crime into general crime (burglary, auto theft, larceny, robbery, and rape) and violent crime (assault and murder). Shichor et al. (1979; 1980; Decker et al., 1982) divide victimizations into three categories on the basis of the pattern of relationships between the offense and population density. In neither case is there much theoretical rationale for the classification system presented.

Brantingham and Brantingham (1980) use a better approach to the establishment of a crime classification system. On the basis of prior research and theoretical considerations, they hypothesize which crimes should be affected by which of their variables. They predict that murder and assault should be a function of "motivation" variables, that burglary, larceny and motor vehicle theft should be a function of "opportunity" variables and that

rape and robbery would be affected by both types of variables. Their empirical test largely supports the suggested typology (Brantingham and Brantingham, 1980: 99-105).

## A Typology of Crime Based on the Community Control Perspective

It is now possible to propose a theoretically based typology of crime for use with an ecological analysis. The purpose of this section is to draw from the community control perspective some hypotheses about which crimes should be able to be controlled by the community level variables.

As was discussed in Chapter III, control theory implies that deviance and conformity are actions based on rational calculation of the potential loss or gain. The essence of control theory lies in the question 'Why don't people deviate?'. According to this perspective a person avoids deviance because of the fear of the consequences. The criminal risks the loss of ties to friends and relatives, the forfeiture of what has been invested in conventional lines of behavior, and the potential of other kinds of punishment (Stark et al, 1980: 43).

Given the assumption that man is a rational actor, it is clear that crimes not characterized by calculation

cannot be constrained as effectively by the bonds described in control theory. Similarly, at the ecological level, factors that tend to facilitate bonds between individuals should be more effective in controlling calculated crimes versus those that are not calculated. Community integration and environmental disorganization should be more strongly associated with the former than the latter.

Based on the image of man as a rational actor, a number of researchers have proposed dividing crimes into categories based on how calculated the offenses are. Chambliss (1967) distinguishes between "instrumental" and "expressive" crimes; Block (1977: 9) uses the terms "instrumental" versus "impulsive"; Geerken and Gove (1977: 429) prefer "rational" and "nonrational"; Davidson (1981: 109) calls his categories "purposive" and "impulsive"; and Stark and Crutchfield (1981) describe crimes as either "intentional" or "impulsive". While there is some disagreement as to which crimes fall into which category, all of these typologies are based on the same distinction--between crimes that are thought out and those that are not. The particular terminology is not important. For the purposes of this dissertation, crimes will be divided into "intentional" and "impulsive" types.

Following Stark and Crutchfield (1981), intentional crimes are those that have the character of rational calculation. These are crimes where the offender is fully aware of what he or she is doing and to a certain extent weighs the costs and benefits of the act. This is not to say that the offender is accurate in his or her assessment of the potential net gain or the chance of getting caught. But rather, that the nature of the act is such that there is an opportunity for the offender to consider the potential losses.

Again following the typology used by Stark and Crutchfield (1981), impulsive crimes are momentary norm violations usually occurring in the course of an argument, or when the offender is intoxicated. The individual literally doesn't know what he or she is doing. This is not to say that the individual is not to blame or will never commit the act again. Rather, the offender carried out the offense without taking the time to consider the consequences.

Intentional versus impulsive crimes in Canada

The next task is to classify violations of the Canadian Criminal Code in terms of the intentional/impulsive typology and thus to delineate which crime can be controlled using the present perspective. The definitions of the various offenses were presented

above in Chapter IV.

Although the community control perspective predicts that intentional crimes will be more strongly correlated with community integration and environmental disorganization, fitting particular offense into one of these two classes is no small task. The difficulties are exacerbated by the large number of offense categories that contain a variety of offenses some of which are probably intentional while others seem more impulsive. The crime categories were devised for reporting purposes and are based on the language of the Criminal Code of Canada. Thus, they are far from ideal for the purpose of distinguishing between intentional and impulsive crime. The hypothesized classification is found in Table 8.

The three forms of homicide appear to be primarily impulsive. There is much evidence that most homicides occur between people who know one another (Wolfgang, 1958; Curtis, 1974) and often in the "heat of passion". However it has been estimated that about 30% of homicide are what Parker and Smith (1979) call nonprimary homicide--gangland slayings or homicides occurring during the course of another crime (Geerken and Gove, 1977). For the same reasons, woundings and other assaults will be classified as impulsive. Assaults usually take place in the context of an argument.

Table 8: Hypothesized Crime Typology

| Crime | Impulsive | Intentional | Mixed |
|---|---|---|---|
| Murder | X | | |
| Attempted Murder | X | | |
| Manslaughter | X | | |
| Rape | | X | |
| Wounding | X | | |
| Other Assaults | X | | |
| Robbery | | | X |
| Breaking and Entering | | X | |
| Auto Theft | | | X |
| Theft > $200 | | X | |
| Theft < $200 | | X | |
| Possession of Stolen Goods | | X | |
| Fraud | | X | |
| Weapons Offences | | X | |

At first glance, robbery and auto theft could be seen as clear examples of intentional crimes. However, there exists empirical evidence that encourages the conclusion that they are a mixture of intention and impulse.

In their intensive study of robbers and their victims in Oakland, California, Feeney and Weir (1975) show that there is a substantial impulsive element to robbery. Nearly 40% of robbers interviewed reported being high on drugs or drunk at the time of the robbery. More than half of the adult robbers said that they did no planning whatsoever and two-thirds said that previous to the offense, they hadn't considered the possibility of their getting caught. Some even claimed that they had not started out to commit a robbery when it happened (Feeney and Weir, 1975: 104-105).

A substantial amount of auto theft is committed by gangs of professional thieves who steal cars, dismantle them in "chop shops", and sell the parts. However, much auto theft is probably committed on impulse by youths. Such thefts are probably not planned in advance and would not have occurred if the opportunity (unlocked car with keys in the ignition) had not been present.

Breaking and entering, theft, possession of stolen goods, fraud, and weapons offenses seem to be clear-cut cases of intentional crime. Each would involve some

rational calculation of potential losses and gains and planning would be required to commit them successfully. Similarly, rape is an intentional crime that involves planning and preparation (Stark and Crutchfield, 1981: 8).

The categories entitled "other sexual offenses" and "other criminal code" contain so many different kinds of behaviors that they cannot be classified accurately.

Thus, it has been hypothesized that most of the crimes can be classified in terms of how impulsive or intentional they are. Impulsive crimes include the three types of homicide (murder, attempted murder, and manslaughter) and the two assaultive offenses (wounding and other assaults). Breaking and entering, theft, possession of stolen goods, fraud, and weapons offenses are classified as intentional. Robbery and auto theft include some elements of each.

### A Test of the Proposed Typology of Crime

It is possible to test the proposed typology of crime using factor analysis. The hypotheses presented above posit the existence of a particular underlying factor structure. In this section, an attempt will be made to empirically verify the factor structure.

The basic assumption of factor analysis is that a set of observed variables is some linear combination of one or

more underlying but unobserved constructs (Kim and Mueller, 1978b: 8). Through factor analysis, one seeks to derive this factor structure from the correlations or covariances among the observed variables. This necessarily entails several logical leaps of faith and other assumptions that can probably never be met in the real world (Kim and Mueller, 1978a: 38-43). Nevertheless, when used properly, factor analysis can be a powerful and useful technique.

As was discussed in the literature review in Chapter II, exploratory factory analysis is commonly used when the researcher has no theory and no other way to predict the nature of the factor structure. In confirmatory factor analysis (a form of which will be used here), one or more hypotheses are stated regarding the factor structure and the factor analysis is used to provide empirical verification or refutation.

It has been proposed that crimes can be divided into two general types. However, it is not possible to provide a complete description of the underlying factor structure of the Canadian crime variables. This paper hypothesizes the existence of an intentional crimes factor with high loadings for the intentional crimes and low factor loadings for impulsive crimes. The intentional crimes constitute the crimes that can be controlled. On the

other hand, firm predictions cannot be made regarding the factor structure of the impulsive crimes. In fact, one thesis of this dissertation is that the impulsive crimes tend to be etiologically idiosyncratic and are thus not amenable to being described as a function of a single underlying factor. In other words, the causes of the impulsive crimes probably do not lie in the community control variables.

The factor analysis was carried out using the 14 crime categories (in Table 8) for which predictions could be made. The initial factors were extracted using principal axis factoring with iterated communalities as recommended by Kim (1975). An oblique rotation to a final solution was used because there is no theoretical reason to exclude the possibility of correlations between the factors. However, an orthogonal rotation produced the exact same pattern of factor loadings. The factor pattern matrix for the oblique rotation is shown in Table 9.

The results of the factor analysis are not as clear-cut as would have been hoped. As is often the case, interpretation is rather difficult. The factor structure that was derived is more complex than was expected. Four factors were extracted each of which has an eigenvalue greater than one. Together they explain over 66% of the variance.

Table 9: Oblique Factor Pattern Matrix for 1971 Canadian Crime Rates

| Crime | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|---|---|---|---|---|
| Murder | .07913 | .09708 | -.09291 | .64058 |
| Attempted Murder | .18761 | .07790 | .13976 | .22723 |
| Manslaughter | .01137 | -.02198 | .28806 | -.10011 |
| Rape | .08063 | .29434 | .40986 | .04434 |
| Wounding | .01642 | -.00965 | .71531 | .21724 |
| Other Assaults | .81006 | -.00160 | -.03804 | -.03876 |
| Robbery | -.17598 | .65830 | .14164 | .23673 |
| Breaking & Entering | .24127 | .67473 | -.00742 | -.02728 |
| Auto Theft | .15916 | .81299 | -.00556 | .00970 |
| Theft > $200 | -.01063 | .82262 | -.07409 | -.01699 |
| Theft < $200 | .82745 | .29044 | -.04841 | -.17165 |
| Possession of Stolen Goods | .64759 | -.05094 | .15048 | .12123 |
| Fraud | .70674 | .11471 | -.03498 | .04925 |
| Weapons Offences | .62818 | -.08588 | .03908 | .06561 |

Attempted murder and manslaughter do not load very highly on any of the factors. Murder loads highly on a factor that loads highly on no other offense. The same is true of wounding. These findings are consistent with the hypothesized typology. These impulsive crimes do not cluster with the intentional offenses.

Factors one and two appear to represent primarily intentional or mixed intentional crimes. The first factor has high loadings for theft less than $200, possession of stolen goods, fraud, and weapons offenses. These are all clearly intentional crimes. Harder to understand is the high loading for "other assaults" on this factor. In addition, rape, which was predicted to be an intentional crime does not cluster with the other intentional crimes. The second factor has high loadings on robbery, breaking and entering, auto theft and thefts greater than $200.

The factor analysis provides limited empirical support for the hypothesized typology. Although several of the offenses fail to follow the predicted patterns, the majority conform to expectations. As was mentioned, problems in how crimes are categorized in the Canadian reporting system make the process of rating offenses as either impulsive or intentional very difficult.

This typology will be used throughout the rest of the analysis. It is the contention of this paper that the

community control perspective will be better able to predict the intentional crimes. The typology will be further tested in the next chapter by using it in the data analysis.

## Notes for Chapter Six

1. A number of researchers recommend dividing crime up into even finer distinctions. For example, see Parker and Smith (1979) and Smith and Parker (1980) on types of homicide.

2. For a good review of this literature, see Gibbons (1975: 140-156; 1979: 85-92).

## VII. Community Control and Crime

In the last chapter, it was hypothesized that the community control perspective can explain rates of intentional crime better than rates of impulsive crime. The factor analysis provided some support for the proposed typology. In this chapter, the efficacy of community control variables to explain various types of crime rates will be tested more directly.

However, the main thrust of this chapter is to show that the community control perspective is useful in explaining intentional crime. Bivariate relationships between crime rates and the community control variables and variables operationalizing alternative explanations will be reported. Appropriate controls will be imposed using partial correlations. A regression analysis will be carried out to refine the analysis and derive a set of community control variables to explain intentional crime rates. A path analysis is used to help interpret the regression results. Variables from alternative explanations will be entered into the regression model to test their explanatory power relative to the community control variables.

This chapter sets out to test several specific hypotheses: 1. The zero order correlations between

community control variables and intentional crime rates are strong relative to those between alternative variables and intentional crime rates; 2. The zero order correlations between community control variables and intentional crime rates are strong relative to those for other types of crime; 3. The high correlations between intentional crime rates and the community control variables remain high when controls for alternative variables are imposed; 4. A set of community control variables can be derived which explain much of the variance in intentional crime rates; 5. The community control variables explain more of the variance in intentional crime rates than do alternative explanation variables.

For purposes of presentation, the independent variables to be used in this analysis can be divided into several groups as shown in Table 10. Each of these variables are derived from the community control perspective or alternative explanations discussed above. Operationalization of the community control perspective and other explanations was discussed in Chapter IV. The abbreviations used in some of the tables below are also shown in Table 10.

The variables described in Chapter IV under the rubric "subcultural explanations" all have to do with the

Table 10: Independent Variables Grouped for Presentation

Community Control Theory Variables
- Labor force participation rate of those aged 15-19 (PR)
- Rate of religious affiliation (RA)
- Proportion non-family persons (%NF)
- Proportion foreign born (%FB)
- Proportion born in Canada but a different province than the one of residence (%BDP)
- Proportion or those ever married who are divorced (%DV)

Economic Explanations
- Average income of non-family persons ($NF)
- Average income of household heads ($HH)
- Average income of economic families ($FAM)
- Male unemployment rate (MUE)
- Female unemployment rate (FUE)
- % low income families (%LI)

Density and Crowding
- Population density (PD)
- Average number of persons per room (PPR)

Deterrence Theory
- Clearance rate for 1971 (CLR)

Control Variables
- Proportion minority (Black or Native American) (RACE)
- Proportion age 15-24 (AGE)
- Sex ratio (SEX)

age, gender, and racial composition of a given community. These variables do not constitute an explanation as such but rather are a description of those most likely to commit and be victimized by most types of crime. The present paper is interested in what it is about communities that leads to higher crime rates above and beyond these demographic characteristics. Therefore, for the bulk of the analysis, proportion minority (a combination of proportion Native American and proportion Black), the sex ratio, and proportion age 15 to 24 (the ages most involved in crime) will be included as control variables rather than as a competing theory. In order to distinguish these variables from those generated by the community control perspective the former will be referred to as the control variables and the latter will be referred to as the community variables.

**Bivariate Correlations**

Table 11 reports correlation coefficients for the relationship between the community variables and alternative variables and the seven crime rates denoted as intentional (see Table 8 above). For clarity of presentation, correlations statistically significant at the .001 level are indicated in boldface type.

Table 11: Correlations Between Independent Variables and Intentional Crime Rates

| | Rape | Breaking and entering | Theft > $200 | Theft < $200 | Possess stolen goods | Fraud | Weapons offenses |
|---|---|---|---|---|---|---|---|
| Community Control Variables | | | | | | | |
| Participation rate | .30 | .34 | .19 | .60 | .44 | .50 | .40 |
| Religious affiliation | -.37 | -.47 | -.24 | -.48 | -.45 | -.45 | -.38 |
| Prop. non-family | .24 | .36 | .31 | .45 | .28 | .44 | .23 |
| Prop. foreign born | .35 | .34 | .18 | .42 | .44 | .40 | .34 |
| Prop. from a diff. prov. | .24 | .38 | .20 | .47 | .36 | .39 | .33 |
| Prop. divorced | .39 | .61 | .40 | .68 | .50 | .61 | .42 |
| Alternative Explanations | | | | | | | |
| Nonfamily income | .13 | .19 | .23 | .08 | .08 | .05 | .12 |
| Household head income | -.05 | .00 | .06 | -.13 | -.07 | -.08 | -.05 |
| Family income | -.03 | .01 | .08 | -.11 | -.06 | -.07 | -.05 |
| Male unemployment | -.08 | .01 | .10 | -.11 | -.11 | -.09 | -.17 |
| Female unemployment | -.12 | -.08 | -.03 | -.20 | -.12 | -.22 | -.09 |
| % low income families | .19 | .31 | .29 | .21 | .06 | .21 | .08 |
| Population density | .14 | .20 | .21 | .07 | .09 | .10 | .01 |
| Persons per room | -.22 | -.27 | -.05 | -.41 | -.28 | -.36 | -.16 |
| Clearance rate | -.18 | -.34 | -.29 | -.16 | .00 | .00 | -.09 |
| Prop. Minority | .23 | .19 | .11 | .32 | .26 | .32 | .40 |
| Prop. Age 15 to 24 | .12 | -.06 | .13 | -.01 | -.12 | .02 | -.07 |
| Sex ratio | .01 | -.05 | .01 | .00 | .09 | -.04 | .23 |

It is clear from this table that the community variables correlate much more strongly with the intentional crimes than any of the alternative variables. The correlations are almost universally strong and are all in the predicted direction. The correlations for theft greater than $200 are somewhat lower than those for the other intentional crimes.

A few of the correlations with alternative variables are worth noting. Average persons per room does correlate with five of the seven intentional crimes but in a direction opposite that which the alternative theory would predict. The alternative theory says that crowding should increase pathology. The data show that the more crowding in dwelling units, the lower the rates of intentional crime. This finding is more in keeping with the community control perspective. Crowding is probably associated with intensive interactions among family members and thus could serve to lower crime according to the community control perspective. In keeping with previous research, the proportion minority in a community is significantly related to many types of crime (both impulsive and intentional) demonstrating the need to control for racial composition in the rest of the analysis. The percent of families that are low income is also correlated with some of the crimes. However, this variable is available for

only 124 cases so further detailed analysis using it was not carried out. The strength of clearance rate as a correlate of breaking and entering and theft greater than $200 points out the need for a closer examination of this explanation below.

Quebec differs substantially from the other provinces in terms of the religious economy and other cultural factors. It could be argued that the factors that affect community crime rates will also differ. Table 12 shows the zero order correlations between the independent variables and the intentional crime rates for the 83 cities in Quebec that were included in the sample. The general findings are similar to those in Table 11 with a few exceptions. Religious affiliation, proportion non-family, and proportion foreign born are all weaker correlates of crime in Quebec relative to Canada as a whole. This is probably due to the greater homogeneity of the cities in Quebec with regard to these factors. Nevertheless, it appears that in general, the community variables are somewhat stronger correlates at the zero order level than the alternative explanations within the towns and cities in Quebec.

Table 13 shows the zero order correlations between the independent variables and the crimes that are thought to be impulsive (for the national sample of 218). Again,

Table 12: Correlations Between Independent Variables and Intentional Crime Rates For Quebec Only (N=83)

| | Rape | Breaking and entering | Theft > $200 | Theft < $200 | Possess stolen goods | Fraud | Weapons offenses |
|---|---|---|---|---|---|---|---|
| Community Control Variables | | | | | | | |
| Participation rate | **.33** | .24 | .27 | .24 | .25 | -.07 | .29 |
| Religious affiliation | -.09 | -.25 | -.24 | -.17 | .03 | -.10 | .00 |
| Prop. non-family | .04 | .11 | .10 | .07 | .03 | .23 | .02 |
| Prop. foreign born | .14 | .29 | .17 | .09 | -.04 | -.05 | .00 |
| Prop. from a diff. prov. | .30 | **.33** | .29 | .28 | .22 | .11 | .06 |
| Prop. divorced | .20 | **.41** | **.35** | .27 | .03 | .20 | .12 |
| Alternative Explanations | | | | | | | |
| Nonfamily income | .14 | **.33** | **.39** | .27 | -.08 | .20 | -.02 |
| Household head income | -.06 | .14 | .15 | .02 | -.06 | .07 | -.13 |
| Family income | -.04 | .16 | .17 | .04 | -.05 | .10 | -.12 |
| Male unemployment | -.21 | -.13 | -.08 | -.01 | -.01 | .17 | -.06 |
| Female unemployment | -.27 | -.09 | -.08 | .02 | -.07 | .06 | .09 |
| % low income families | .05 | .06 | .01 | .10 | .18 | .14 | .27 |
| Population density | .19 | .19 | .05 | .07 | .11 | .07 | .16 |
| Persons per room | .02 | -.05 | -.06 | .03 | .20 | .07 | .12 |
| Clearance rate | -.23 | **-.43** | **-.42** | **-.40** | -.07 | .06 | -.30 |
| Prop. Minority | .12 | .21 | .05 | .15 | .03 | .14 | .14 |
| Prop. Age 15 to 24 | -.13 | -.16 | -.03 | -.00 | -.04 | .24 | -.04 |
| Sex ratio | -.03 | .03 | .05 | .10 | .10 | -.08 | .10 |

Table 13: Correlations Between Independent Variables and Impulsive Crime Rates

| | Murder | Attempted murder | Manslaughter | Wounding | Other Assaults |
|---|---|---|---|---|---|
| Community Control Variables | | | | | |
| Participation rate | .14 | .16 | -.01 | .08 | **-.48** |
| Religious affiliation | -.13 | **-.29** | -.03 | -.12 | **-.40** |
| Prop. non-family | .19 | .14 | .01 | .16 | **.34** |
| Prop. foreign born | .08 | .19 | .00 | .14 | **.37** |
| Prop. from diff. prov. | .11 | .14 | .12 | .01 | **.37** |
| Prop. divorced | **.23** | **.32** | .05 | .17 | **.55** |
| Alternative Explanations | | | | | |
| Nonfamily income | .04 | .20 | .02 | .06 | .10 |
| Household head income | -.03 | .08 | -.04 | -.02 | -.12 |
| Family income | -.01 | .09 | -.04 | -.01 | -.12 |
| Male unemployment | .01 | -.04 | .04 | -.04 | -.10 |
| Female unemployment | -.09 | -.04 | .06 | -.07 | -.13 |
| % low income families | **.32** | .18 | -.05 | .06 | .12 |
| Population density | **.21** | .15 | .00 | .18 | -.02 |
| Persons per room | .03 | -.07 | -.01 | -.02 | **-.31** |
| Clearance rate | -.10 | -.05 | .11 | .05 | -.10 |
| Prop. minority | **.20** | **.57** | .09 | **.32** | **.45** |
| Prop. Age 15 to 24 | .06 | -.04 | .05 | .01 | -.01 |
| Sex ratio | .04 | .14 | -.03 | .01 | .13 |

correlations significant at the .001 level are shown in boldface type. The correlations between these crimes and the community control variables tend to be substantially lower than the corresponding correlations with the intentional crimes. The category "other assaults" is an exception. In this respect, it seems to more closely resemble the intentional crimes than the impulsive crimes. This is consistent with the results of the earlier factor analysis which placed other assaults in the same factor as the intentional crimes. As was mentioned, this category contains a wide variety of types of behavior. Unfortunately, information regarding the relative frequency of the different offenses that make up this category is not available. It is possible that intentional actions dominate this category. Proportion native is strongly correlated with several of the impulsive crimes.

Table 14 reports the correlations between all the independent variables and those crimes thought to be a mixture of intentional and impulsive (see Table 8) and those crime categories so heterogeneous as to be unclassifiable. Auto theft and "other criminal code violations" correlate strongly with the crime variables and thus appear to be primarily intentional in nature. But again, a detailed breakdown of these rather heterogeneous categories would be needed to explore this

Table 14: Correlations Between Independent Variables and The Remaining Crime Rates

| | Sex offences | Robbery | Auto Theft | Other criminal code violations |
|---|---|---|---|---|
| Community Control Variables | | | | |
| Participation rate | .08 | -.02 | **.31** | **.46** |
| Religious affiliation | -.07 | -.10 | **-.26** | **-.47** |
| Prop. non-family | .05 | **.41** | **.46** | **.28** |
| Prop. foreign born | .10 | .15 | .18 | **.37** |
| Prop. from a diff. prov. | .05 | -.01 | .22 | **.44** |
| Prop. divorced | .12 | **.35** | **.50** | **.52** |
| Alternative Explanations | | | | |
| Nonfamily income | **.20** | .08 | .08 | .11 |
| Household head income | .06 | -.04 | -.13 | -.14 |
| Family income | .08 | .00 | -.10 | -.15 |
| Male unemployment | -.07 | **.23** | .14 | -.06 |
| Female unemployment | -.06 | -.02 | -.06 | -.07 |
| % low income families | -.07 | **.50** | **.47** | .14 |
| Population density | .15 | **.44** | **.28** | -.02 |
| Persons per room | -.03 | .01 | -.10 | **-.24** |
| Clearance rate | **-.23** | -.17 | **-.21** | -.16 |
| Prop. minority | .03 | .10 | .17 | **.47** |
| Prop. Age 15 to 24 | .00 | .13 | .18 | .06 |
| Sex ratio | .00 | -.14 | -.09 | **.21** |

possibility.

A comparison of Tables 11, 13, and 14 provides evidence to confirm the first two hypotheses presented in this chapter. The community variables are more strongly correlated with the intentional crimes than the variables generated by alternative explanations. In addition, with a few exceptions, the community variables are more strongly correlated with those crimes hypothesized to be intentional in nature than with other crimes.

## Partial Correlations

As an initial test for spuriousness, first-order partial correlation coefficients were calculated for the relationship between each of the intentional crimes and each of the community variables while controlling for the effects of alternative variables. A substantial decrease in the strength of the coefficient is evidence of the possibility of spuriousness. Results are shown in Table 15 with partial correlations significant at the .001 level shown in boldface type. Almost universally, the correlations remain strong and significant at the .001 level when alternative variables are controlled. The only exception is that some of the correlations for theft greater than $200 were not strong to begin with and fell below significance when controls were imposed.

Table 15: Partial Correlation Coefficients--Community Control Variables by Intentional Crime Rates Controlling For Alternative Explanations

| Rape | Partici-pation rate | Reli-gious affil. | % Non-family persons | % For-eign Born | % Born in diff. province | % Di-vorced |
|---|---|---|---|---|---|---|
| Zero-order Correlations | .30 | -.37 | .24 | .35 | .25 | .41 |
| First-order Partial Correlations Controlling For: | | | | | | |
| Average income of non-family persons | .27 | -.37 | .28 | .32 | .21 | .39 |
| Average income of household heads | .30 | -.41 | .26 | .39 | .26 | .41 |
| Average income of families | .30 | -.41 | .26 | .39 | .25 | .41 |
| Male unemployment rate | .29 | -.39 | .27 | .36 | .23 | .40 |
| Female unemployment rate | .27 | -.38 | .23 | .33 | .24 | .39 |
| Population density | .30 | -.41 | .22 | .34 | .27 | .39 |
| Average # persons per room | .21 | -.33 | .18 | .28 | .18 | .35 |
| Clearance rate | .28 | -.38 | .29 | .32 | .23 | .38 |
| Proportion Minority | .25 | -.32 | .20 | .32 | .19 | .36 |
| Proportion age 15 to 24 | .28 | -.38 | .32 | .34 | .23 | .40 |
| Sex ratio | .30 | -.40 | .29 | .36 | .26 | .41 |

Table 15 (continued)
Partial Correlation Coefficients

| Breaking and Entering | Participation rate | Religious affil. | % Non-family persons | % Foreign Born | % Born in diff. province | % Divorced |
|---|---|---|---|---|---|---|
| Zero-order Correlations | .34 | -.47 | .36 | .34 | .37 | .61 |
| First-order Partial Correlations Controlling For: | | | | | | |
| Average income of nonfamily persons | .31 | -.44 | .40 | .30 | .34 | .59 |
| Average income of household heads | .34 | -.49 | .38 | .38 | .38 | .61 |
| Average income of families | .34 | -.48 | .38 | .38 | .38 | .61 |
| Male unemployment rate | .41 | -.50 | .38 | .41 | .40 | .63 |
| Female unemployment rate | .35 | -.47 | .37 | .35 | .37 | .62 |
| Population density | .35 | -.49 | .33 | .33 | .41 | .59 |
| Average # persons per room | .24 | -.40 | .29 | .24 | .31 | .60 |
| Clearance rate | .32 | -.45 | .40 | .29 | .36 | .59 |
| Proportion Minority | .30 | -.44 | .34 | .32 | .34 | .59 |
| Proportion age 15 to 24 | .34 | -.48 | .42 | .37 | .37 | .61 |
| Sex ratio | .35 | -.49 | .40 | .36 | .41 | .61 |

Table 15 (continued)
Partial Correlation Coefficients

| Theft > $200 | Partici-pation rate | Reli-gious affil. | % Non-family persons | % For-eign Born | % Born in diff. province | % Di-vorced |
|---|---|---|---|---|---|---|
| Zero-order Correlations | .19 | -.24 | .31 | .18 | .20 | .40 |
| First-order Partial Correlations Controlling For: | | | | | | |
| Average income of nonfamily persons | .16 | -.19 | .34 | .09 | .15 | .37 |
| Average income of household heads | .20 | -.25 | .33 | .17 | .20 | .40 |
| Average income of families | .20 | -.24 | .33 | .16 | .19 | .40 |
| Male unemployment rate | .29 | -.30 | .30 | .25 | .25 | .43 |
| Female unemployment rate | .21 | -.25 | .32 | .18 | .20 | .41 |
| Population density | .21 | -.26 | .26 | .15 | .23 | .38 |
| Average # persons per room | .22 | -.26 | .32 | .20 | .20 | .50 |
| Clearance rate | .17 | -.22 | .32 | .11 | .18 | .37 |
| Proportion Minority | .17 | -.21 | .30 | .16 | .18 | .39 |
| Proportion age 15 to 24 | .23 | -.32 | .28 | .27 | .24 | .42 |
| Sex ratio | .21 | -.25 | .37 | .18 | .20 | .41 |

Table 15 (continued)
Partial Correlation Coefficients

| Theft < $200 | Partici-pation rate | Reli-gious affil. | % Non-family persons | % For-eign Born | % Born in diff. province | % Di-vorced |
|---|---|---|---|---|---|---|
| Zero-order Correlations | .60 | -.48 | .45 | .42 | .47 | .69 |
| First-order Partial Correlations Controlling For: | | | | | | |
| Average income of nonfamily persons | .61 | -.50 | .49 | .45 | .47 | .69 |
| Average income of household heads | .61 | -.55 | .46 | .52 | .51 | .70 |
| Average income of families | .62 | -.54 | .46 | .53 | .50 | .71 |
| Male unemployment rate | .64 | -.49 | .50 | .44 | .47 | .69 |
| Female unemployment rate | .59 | -.48 | .44 | .40 | .47 | .68 |
| Population density | .61 | -.51 | .48 | .43 | .49 | .69 |
| Average # persons per room | .50 | -.32 | .35 | .23 | .39 | .61 |
| Clearance rate | .60 | -.48 | .49 | .42 | .46 | .68 |
| Proportion Minority | .56 | -.42 | .42 | .38 | .41 | .66 |
| Proportion age 15 to 24 | .61 | -.53 | .51 | .49 | .48 | .70 |
| Sex ratio | .61 | -.51 | .54 | .44 | .50 | .70 |

Table 15 (continued)
Partial Correlation Coefficients

| Possession of Stolen Goods | Partici-pation rate | Reli-gious affil. | % Non-family persons | % For-eign Born | % Born in diff. province | % Di-vorced |
|---|---|---|---|---|---|---|
| Zero-order Correlations | .44 | -.45 | .28 | .44 | .37 | .51 |
| First-order Partial Correlations Controlling For: | | | | | | |
| Average income of nonfamily persons | .42 | -.46 | .32 | .47 | .36 | .50 |
| Average income of household heads | .44 | -.50 | .30 | .51 | .39 | .51 |
| Average income of families | .44 | -.49 | .30 | .52 | .38 | .52 |
| Male unemployment rate | .44 | -.46 | .33 | .46 | .36 | .50 |
| Female unemployment rate | .42 | -.46 | .28 | .44 | .37 | .50 |
| Population density | .44 | -.48 | .29 | .45 | .39 | .50 |
| Average # persons per room | .34 | -.39 | .21 | .37 | .31 | .44 |
| Clearance rate | .44 | -.47 | .31 | .48 | .37 | .52 |
| Proportion Minority | .39 | -.40 | .25 | .41 | .32 | .47 |
| Proportion age 15 to 24 | .43 | -.46 | .38 | .46 | .36 | .50 |
| Sex ratio | .43 | -.46 | .40 | .46 | .37 | .53 |

Table 15 (continued)
Partial Correlation Coefficients

| Fraud | Partici-pation rate | Reli-gious affil. | % Non-family persons | % For-eign Born | % Born in diff. province | % Di-vorced |
|---|---|---|---|---|---|---|
| Zero-order Correlations | .50 | -.45 | .44 | .40 | .39 | .61 |
| First-order Partial Correlations Controlling For: | | | | | | |
| Average income of nonfamily persons | .52 | -.48 | .45 | .44 | .39 | .63 |
| Average income of household heads | .51 | -.51 | .43 | .49 | .42 | .62 |
| Average income of families | .52 | -.50 | .44 | .49 | .41 | .63 |
| Male unemployment rate | .54 | -.46 | .46 | .42 | .38 | .61 |
| Female unemployment rate | .47 | -.44 | .41 | .37 | .38 | .59 |
| Population density | .51 | -.47 | .45 | .40 | .40 | .61 |
| Average # persons per room | .40 | -.35 | .35 | .25 | .30 | .54 |
| Clearance rate | .51 | -.47 | .45 | .42 | .39 | .62 |
| Proportion Minority | .45 | -.39 | .41 | .36 | .31 | .57 |
| Proportion age 15 to 24 | .52 | -.51 | .46 | .48 | .41 | .62 |
| Sex ratio | .51 | -.48 | .50 | .41 | .41 | .62 |

Table 15 (continued)
Partial Correlation Coefficients

| Weapons Offences | Partici-pation rate | Reli-gious affil. | % Non-family persons | % For-eign Born | % Born in diff. province | % Di-vorced |
|---|---|---|---|---|---|---|
| Zero-order Correlations | .40 | -.38 | .23 | .34 | .32 | .43 |
| First-order Partial Correlations Controlling For: | | | | | | |
| Average income of nonfamily persons | .37 | -.34 | .27 | .32 | .29 | .41 |
| Average income of household heads | .39 | -.39 | .26 | .38 | .32 | .43 |
| Average income of families | .39 | -.38 | .26 | .39 | .32 | .43 |
| Male unemployment rate | .36 | -.34 | .29 | .31 | .28 | .41 |
| Female unemployment rate | .39 | -.36 | .23 | .34 | .31 | .42 |
| Population density | .39 | -.37 | .26 | .35 | .32 | .43 |
| Average # persons per room | .36 | -.33 | .20 | .32 | .28 | .43 |
| Clearance rate | .39 | -.36 | .26 | .34 | .31 | .42 |
| Proportion Minority | .33 | -.28 | .18 | .29 | .21 | .35 |
| Proportion age 15 to 24 | .39 | -.37 | .29 | .37 | .31 | .43 |
| Sex ratio | .38 | -.35 | .43 | .35 | .28 | .48 |

## Regression Analysis

A part of the object of this dissertation is to delineate a set of community level variables that can accurately predict intentional crimes. The full set of six community variables were used in a regression analysis to predict intentional crime rates. Also included were the control variables: proportion minority, proportion age 15 to 24, and the sex ratio. The results of this analysis are shown in Table 16. Table 10 includes the list of abbreviations used.

As a set, these variables do a respectable job of predicting intentional crimes. The total explained variance ($R^2$) ranges from a low of 21% for rape to a high of 56% for thefts less than $200. For most of the crimes, more than 30% of the variance is explained by these variables. Yet, few of the regression coefficients are significant at even the .05 level. This pattern suggests the possibility of high multicollinearity.

High multicollinearity refers to the problem of strong correlations among the independent variables in a regression equation. Perfect multicollinearity (one of the independent variables is perfectly correlated with another independent variable or a linear combination of other independent variables) makes it impossible to do the regression. High multicollinearity causes problems in

Table 16: Regression Analysis Using All the Community Variables and the Control Variables Intentional Crimes

| | PR | %BDP | %FB | %NF | RA | %DV | RACE | AGE | SEX |
|---|---|---|---|---|---|---|---|---|---|
| Rape | | | | | | | | | |
| b | -.018 | -4.86 | 3.93 | 26.8 | -37.9 | 56.2 | 37.1 | -20.3 | 6.26 |
| beta | -.028 | -.094 | .065 | .209 | -.258 | .095 | .068 | -.086 | .064 |
| significance | .77 | .33 | .56 | .08 | .06 | .53 | .36 | .33 | .49 |
| $R^2$=.21 | Adjusted $R^2$=.17 | | | | | | | | |
| Breaking and Entering | | | | | | | | | |
| b | -8.03 | 192 | -913 | 1229 | -1029 | 37064 | -3586 | -1450 | 1081 |
| beta | -.141 | .042 | -.172 | .109 | -.080 | .712 | -.075 | -.070 | .126 |
| significance | .09 | .62 | .08 | .29 | .50 | .00 | .24 | .37 | .12 |
| $R^2$=.40 | Adjusted $R^2$=.38 | | | | | | | | |
| Theft > $200 | | | | | | | | | |
| b | -7.08 | -81.3 | -494 | 1518 | 322 | 28002 | -5113 | 1502 | 2088 |
| beta | -.137 | -.020 | -.103 | .150 | .028 | .596 | -.119 | .081 | .270 |
| significance | .14 | .84 | .35 | .20 | .84 | .00 | .10 | .36 | .00 |
| $R^2$=.23 | Adjusted $R^2$=.20 | | | | | | | | |
| Theft < $200 | | | | | | | | | |
| b | 33.3 | 1011 | -1414 | 3628 | 5430 | 68066 | 6593 | -2684 | 2394 |
| beta | .263 | .101 | -.120 | .146 | .190 | .590 | .062 | -.059 | .126 |
| significance | .00 | .17 | .15 | .10 | .06 | .00 | .26 | .38 | .07 |
| $R^2$=.56 | Adjusted $R^2$=.54 | | | | | | | | |
| Possession stolen goods | | | | | | | | | |
| b | .369 | 7.36 | 87.5 | 362 | -126 | 1210 | 177 | -242 | 204 |
| beta | .051 | .013 | .129 | .253 | -.076 | .182 | .029 | -.092 | .187 |
| significance | .56 | .89 | .21 | .02 | .54 | .20 | .67 | .27 | .03 |
| $R^2$=.32 | Adjusted $R^2$=.29 | | | | | | | | |
| Fraud | | | | | | | | | |
| b | 5.37 | 61.1 | 23.9 | 973 | -39.1 | 11634 | 2910 | 677 | 270 |
| beta | .158 | .023 | .008 | .146 | -.005 | .376 | .103 | .055 | .053 |
| significance | .05 | .78 | .94 | .15 | .96 | .00 | .10 | .47 | .50 |
| $R^2$=.42 | Adjusted $R^2$=.40 | | | | | | | | |
| Weapons Offenses | | | | | | | | | |
| b | .356 | -16.4 | 9.66 | 203 | 106 | 1156 | 634 | -192 | 221 |
| beta | .086 | -.50 | .025 | .249 | .113 | .305 | .183 | -.128 | .356 |
| significance | .33 | .58 | .81 | .02 | .36 | .03 | .01 | .12 | .00 |
| $R^2$=.34 | Adjusted $R^2$=.30 | | | | | | | | |

estimating coefficients because it produces large standard errors (Rao and Miller, 1971: 50). The estimated coefficients can be so unstable that it may be hard to achieve statistical significance (Lewis-Beck, 1980: 58-59).

A common method to test for the presence of multicollinearity is to observe the bivariate intercorrelations among the independent variables. These are shown in Table 17. The proportion divorced seems to be the variable most highly correlated with the others, indicating that it might be the variable at fault. The highest correlations is about -.75 which is high but not extremely high.

However, observation of the intercorrelations is not the only or even the best test of multicollinearity. Since it can also be caused by a strong correlation between a variable and a set of other independent variables, a more satisfactory way to show the presence of multicollinearity is to regress each of the independent variables on all the remaining independent variables. The highest $R^2$ among these regression equations is a measure of the degree of multicollinearity present (Lewis-Beck, 1980: 60).

When the six community variables were regressed on each other and the control variables, the regression of

Table 17: Correlations Among the Community and Control Variables

| | PR | %NF | %FB | RA | %DV | %BDP | SEX | RACE | AGE |
|---|---|---|---|---|---|---|---|---|---|
| PR | 1.0 | | | | | | | | |
| %NF | .35 | 1.0 | | | | | | | |
| %FB | .62 | .25 | 1.0 | | | | | | |
| RA | -.63 | -.18 | -.71 | 1.0 | | | | | |
| %DV | .67 | .62 | .68 | -.75 | 1.0 | | | | |
| %BDP | .57 | .12 | .49 | -.72 | .56 | 1.0 | | | |
| SEX | .09 | -.50 | .04 | -.18 | -.17 | .27 | 1.0 | | |
| RACE | .27 | .18 | .20 | -.36 | .32 | .33 | .29 | 1.0 | |
| AGE | -.13 | .35 | -.45 | .34 | -.09 | -.21 | -.06 | .02 | 1.0 |

proportion divorced produced a relatively high $R^2$ of .83. This provides substantial evidence of the presence of multicollinearity. The usual remedy for multicollinearity is to combine the offending variables with other independent variables or to drop them. Because there is no rationale for combining these variables with other independent variables, we are left with the choice of dropping the variable or leaving it in.

One way to weigh the relative advantages of dropping versus retaining a possible collinear variable is to estimate the equations with it in and out. Table 16 above showed the former and Table 18 shows the latter. Comparing these two tables makes it clear that removing proportion divorced has serious consequences on the estimates of the coefficients for each of the seven intentional crimes. This is not surprising since the proportion divorced is highly significant for five of the seven offenses. In most cases excluding proportion divorced from the analysis results in an increase in the explanatory power of proportion non-family and religious affiliation. When dropping a variable from a regression equation results in substantial changes in the other coefficients, there is evidence of specification bias--biases in the coefficients resulting from the failure to include a variable that belongs.

Table 18: Regression Analysis Using All the Community Variables and the Control Variables Excluding Proportion Divorced

| | PR | %BDP | %FB | %NF | RA | RACE | AGE | SEX |
|---|---|---|---|---|---|---|---|---|
| Rape | | | | | | | | |
| b | -.013 | -4.51 | 5.18 | 31.0 | -44.1 | 39.3 | -18.9 | 5.14 |
| beta | -.019 | -.088 | .086 | .242 | -.300 | .072 | -.081 | .053 |
| significance | .84 | .36 | .42 | .02 | .01 | .33 | .36 | .56 |
| $R^2$=.21 | Adjusted $R^2$=.18 | | | | | | | |
| Breaking and Entering | | | | | | | | |
| b | -4.07 | 422 | -91.6 | 4033 | -5097 | -2179 | -578 | 344 |
| beta | -.071 | .093 | -.017 | .359 | -.395 | -.046 | -.028 | .040 |
| significance | .41 | .30 | .86 | .00 | .00 | .50 | .73 | .63 |
| $R^2$=.32 | Adjusted $R^2$=.29 | | | | | | | |
| Theft > $200 | | | | | | | | |
| b | -4.09 | 92.2 | 126 | 3636 | -2751 | -4050 | 2162 | 1532 |
| beta | -.079 | .023 | .026 | .358 | -.236 | -.094 | .116 | .198 |
| significance | .41 | .82 | .81 | .00 | .05 | .21 | .20 | .04 |
| $R^2$=.17 | Adjusted $R^2$=.14 | | | | | | | |
| Theft < $200 | | | | | | | | |
| b | 40.6 | 1433 | 94.6 | 8776 | -2040 | 9178 | -1081 | 1042 |
| beta | .320 | .143 | .008 | .352 | -.071 | .087 | -.024 | .055 |
| significance | .00 | .06 | .92 | .00 | .44 | .14 | .74 | .45 |
| $R^2$=.50 | Adjusted $R^2$=.48 | | | | | | | |
| Possession stolen goods | | | | | | | | |
| b | .498 | 14.9 | 114 | 454 | -258 | 224 | -213 | 180 |
| beta | .068 | .026 | .169 | .316 | -.157 | .037 | -.081 | .165 |
| significance | .43 | .77 | .09 | .00 | .15 | .59 | .32 | .05 |
| $R^2$=.32 | Adjusted $R^2$=.29 | | | | | | | |
| Fraud | | | | | | | | |
| b | 6.61 | 133 | 282 | 1853 | -1316 | 3352 | 952 | 39.6 |
| beta | .195 | .050 | .089 | .278 | -.172 | .119 | .078 | .008 |
| significance | .02 | .56 | .34 | .00 | .09 | .06 | .31 | .92 |
| $R^2$=.40 | Adjusted $R^2$=.38 | | | | | | | |
| Weapons Offenses | | | | | | | | |
| b | .479 | -9.23 | 35.3 | 291 | -20.9 | 678 | -165 | 198 |
| beta | .115 | -.028 | .091 | .356 | -.022 | .196 | -.110 | .319 |
| significance | .19 | .75 | .36 | .00 | .84 | .00 | .18 | .00 |
| $R^2$=.32 | Adjusted $R^2$=.29 | | | | | | | |

In addition, the inclusion of proportion divorced results in a substantial gain in proportion of variance explained in almost every case. This can be seen by comparing the adjusted $R^2$ ($R^2$ adjusted for the number of independent variables) for each crime across the two tables. The generally higher (and sometimes much higher) explained variance for crimes in Table 16 argues in favor of retaining the proportion divorced measure.

The situation remains ambiguous. There is evidence that retaining proportion divorced will result in high standard errors and unreliable coefficients. There is also evidence that excluding the variable will result in specification bias in the coefficients. One other possibility is to drop the variable proportion non-family which is most similar to proportion divorced. However, when this procedure was carried out, there again were substantial changes in the other coefficients.

Given its theoretical importance, the proportion divorced was retained. This dictates that caution should be exercised in interpreting the coefficients especially religious affiliation and proportion non-family persons. The regression of proportion divorced on the other independent variables showed that the religion and non-family variables were most strongly associated with proportion divorced controlling for the other variables.

Given the danger of increased standard errors which results in difficulty in achieving statistical significance, a .10 level of significance will be used in discussions below.

Looking more closely at the coefficients in Table 16 reveals a few important findings. Comparing the standardized slope coefficients (within a given equation) allows one to assess the relative importance of the independent variables. As is to be expected, for different intentional crime rates, different community variables are more or less important.

Of the community variables, proportion non-family and proportion divorced are the two most consistent predictors of intentional crimes. The labor force participation rate for late adolescents is also a good predictor for a number of crimes. But proportion divorced and proportion non-family dominate the other community variables. Both of these are measures of the existence of and stability of family networks. Religious affiliation and the in-migration measures do not appear to have a direct effect on crime.

When proportion divorced is removed from the equations in Table 18 religious affiliation and proportion non-family increase in explanatory strength. This suggests that the effects of religious affiliation work

largely through family stability. Rather than instilling a sense of belonging as hypothesized, religious affiliation may work by strengthening family networks.

Table 19 shows that the simple correlation between religious affiliation and the seven intentional crimes decreases substantially when the proportion divorced is controlled. One plausible explanation for this pattern is that family instability intervenes between crime and religious affiliation (see Figure 1). Another possibility is that the family stability measure is a spurious factor causing both low religious affiliation and high crime. This possibility will be considered below.

Table 16 also shows that when the other factors are controlled, the in-migration measures have little direct effect. Previous research has demonstrated that population instability is negatively related to religious affiliation (Wuthnow and Christiano, 1979; Welch, 1983). Persons who are mobile are less able to form the community ties that church membership entails. It is quite possible that rather than having a direct effect on crime rates, high rates of in-migration facilitate crime indirectly through their effects on religious affiliation and family instability. This is shown in the diagram in Figure 2 which is an elaboration of Figure 1.

Table 19: Intentional Crimes by Religious Affiliation Controlling For Proportion Divorced

| Crime | Correlation with religious affiliation | First order partial correlation |
|---|---|---|
| Rape | -.37 | -.14 |
| Breaking and Entering | -.47 | -.05 |
| Theft greater than $200 | -.23 | .09 |
| Theft less than $200 | -.48 | .03 |
| Possession of stolen goods | -.45 | -.15 |
| Fraud | -.45 | -.02 |
| Weapons offense | -.38 | -.12 |

Figure 1: The Relationship Between Crime, Family Instability and Religious Affiliation

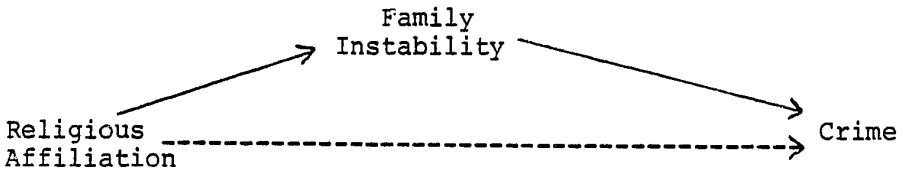
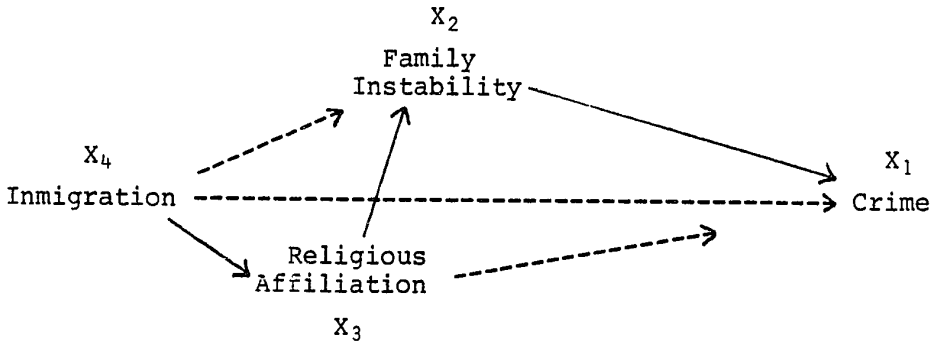


Figure 2: The Relationship Between Crime, Family Instability, Religious Affiliation, and Inmigration




$$X_1 = B_{12}X_2 + B_{13}X_3 + B_{14}X_4$$

$$X_2 = B_{23}X_3 + B_{24}X_4$$

$$X_3 = B_{34}X_4$$

The efficacy of this proposed pattern of relationships can be tested using path analysis to note the direct and indirect effects of in-migration, religious affiliation, and family instability on rates of intentional crimes. A simple, recursive path model will be estimated based on Figure 2. Proportion divorced will be used as the measure of family instability and proportion born in a different province will be used as the measure of in-migration. The paths shown by dotted lines are those expected to be near zero. The equations associated with this model are also shown. It is proposed that the effect of religious affiliation comes mainly through its effect on family instability and that in turn in-migration operates through its effect on religious affiliation.

The path analysis for each of the seven intentional crime rates is shown in Figure 3. These results provide support for the interpretation of the regression results proposed above. In the case of each crime, in-migration has a strong negative effect on religious affiliation and religious affiliation has a strong negative effect on family instability. In all cases except for rape, religious affiliation has only a weak if any direct effect on crime, while family instability has a strong positive relationship with crime. Religious affiliation has both

Figure 3: Path Analysis for Crime, Family Instability, Religious Affiliation, and Inmigration (% Born in Different Province)

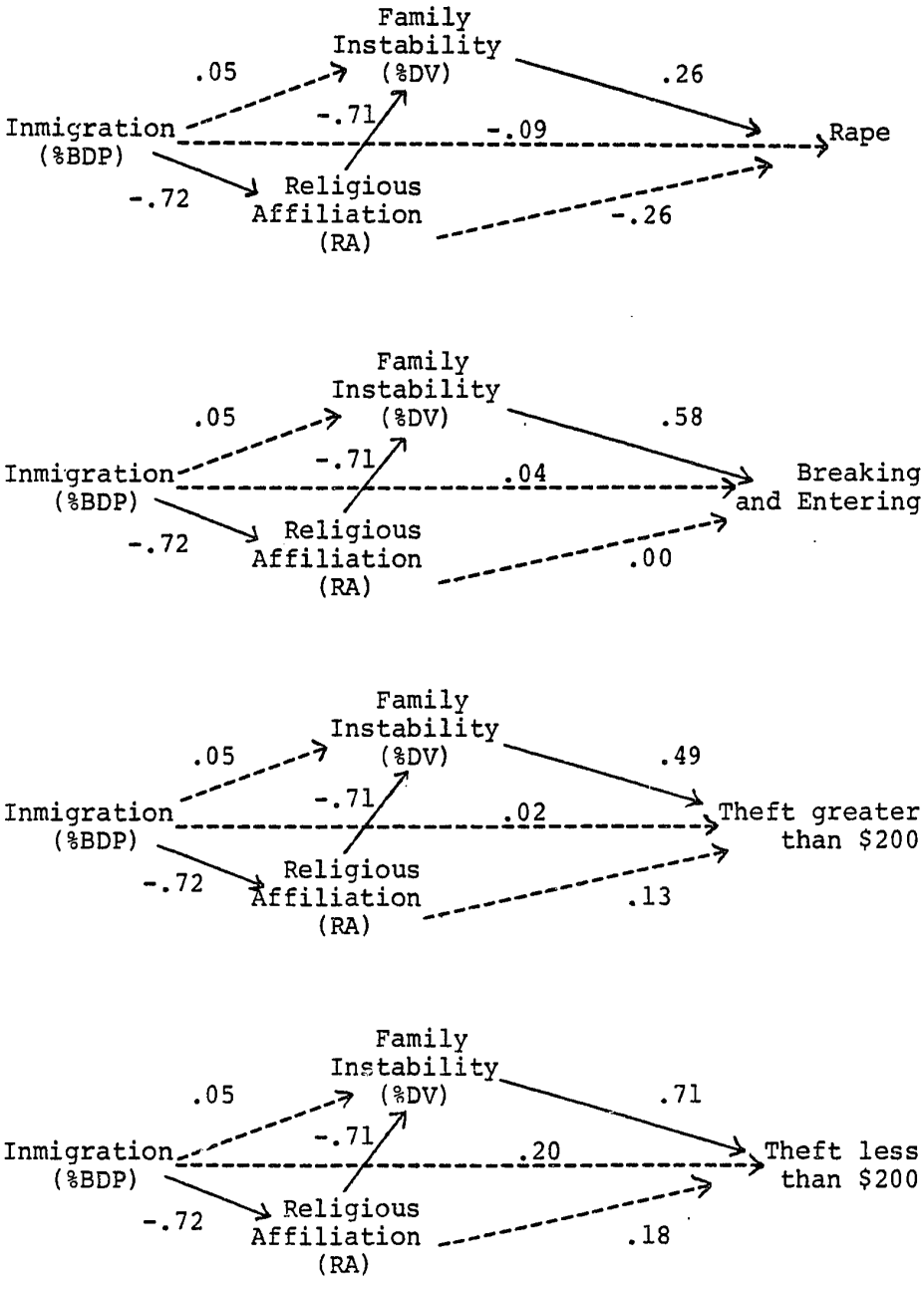
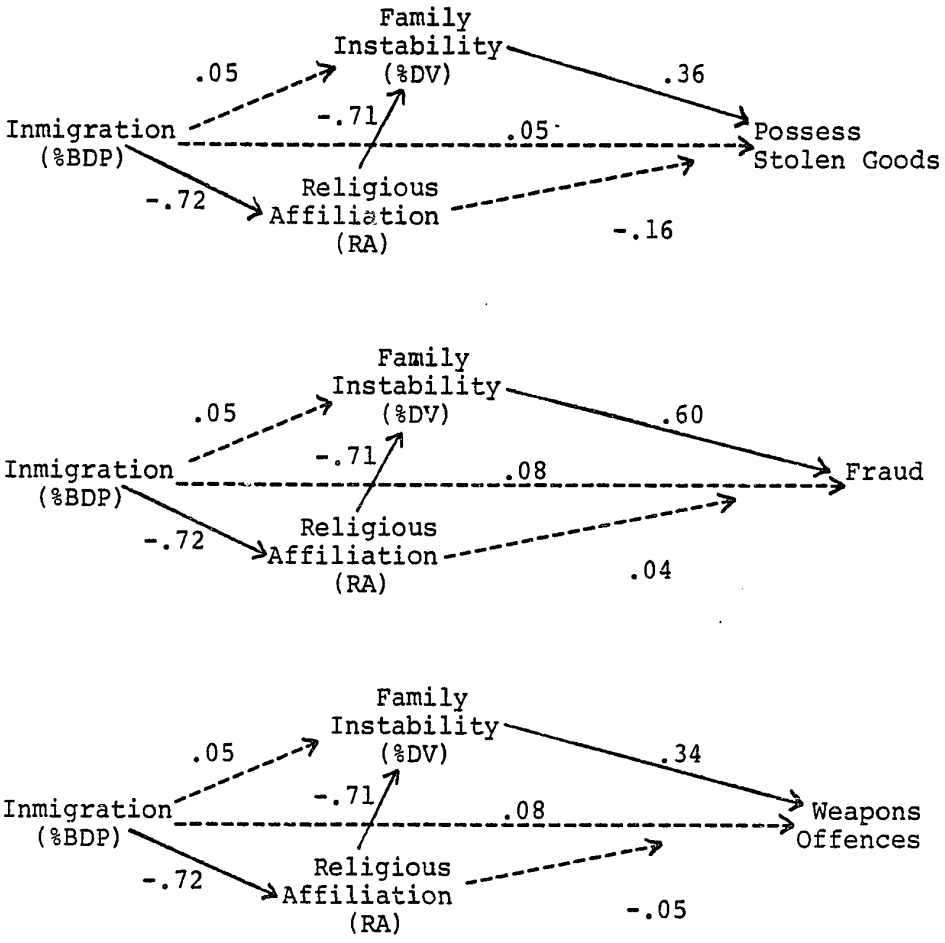


Figure 3 (continued)



strong indirect and direct effects on rape. The path diagram for thefts less than $200 is curious in that net of the effects of family instability, religious affiliation has a slightly positive direct effect on crime. In-migration has an insignificant direct effect on family stability and crime. The only exception is for the case of thefts less than $200 where in-migration has a significant (.10 level) positive direct effect on the crime rate.

Alternative indicators of in-migration and family stability are available. These were substituted for the indicators used in Figure 3 one at a time. The results are shown in Figures 4 and 5. While the magnitude of the path coefficients change, the basic findings are the same when proportion foreign born is substituted for proportion born in a different province in the path analysis. Proportion foreign born has little or no direct affect on crime. However, unlike the proportion born in a different province, this measure of in-migration has a significant direct positive effect on the family instability measure (beta=.31). The proportion of non-family persons appears to be a weaker measure of family instability than proportion divorced. When it is substituted in the path analysis, it has the same effect on the estimates of the path coefficients as proportion divorced but to a much

Figure 4: Path Analysis for Crime, Family Instability, Religous Affiliation, and Inmigration (% Foreign Born)

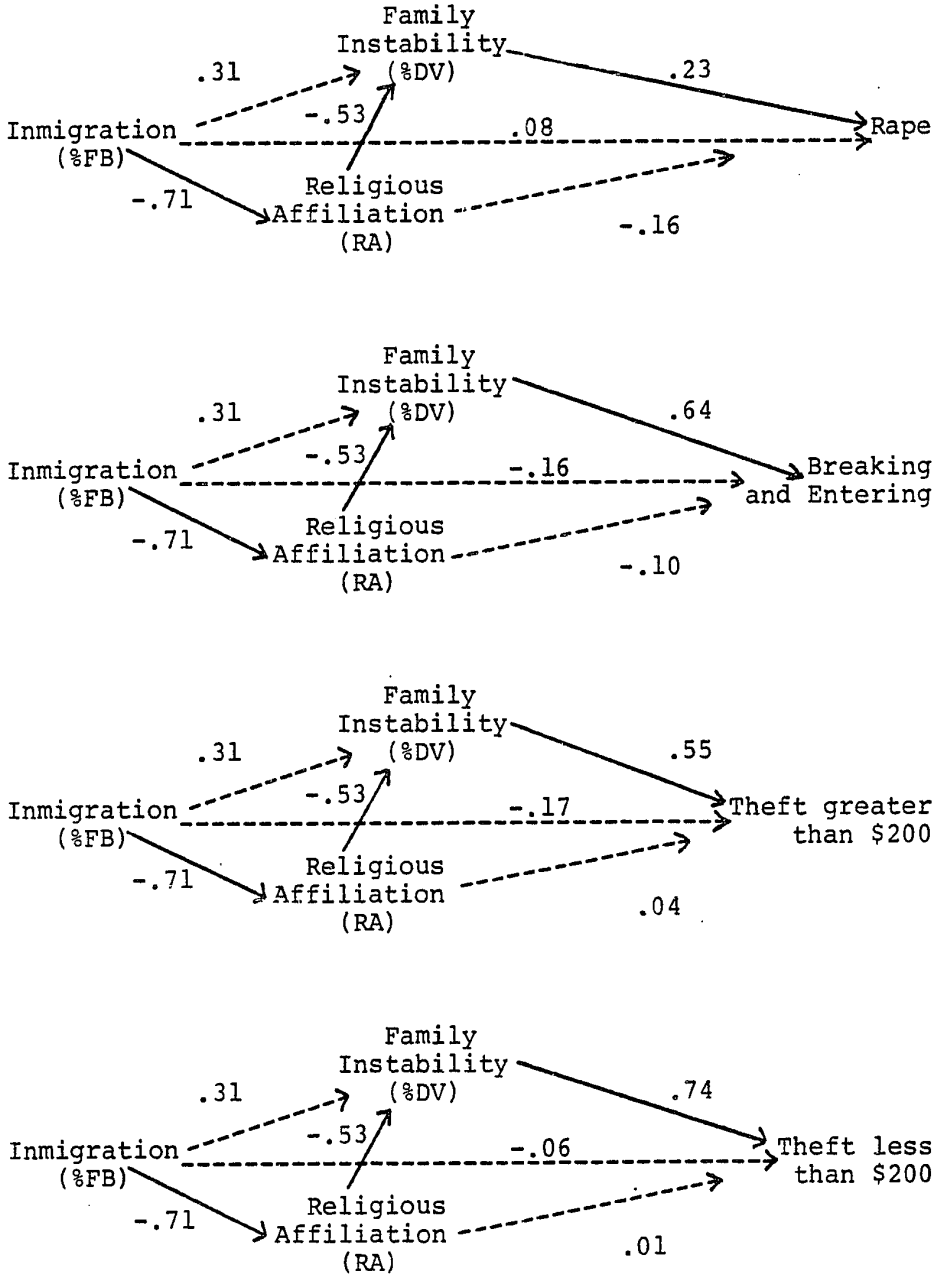


Figure 4 (continued)

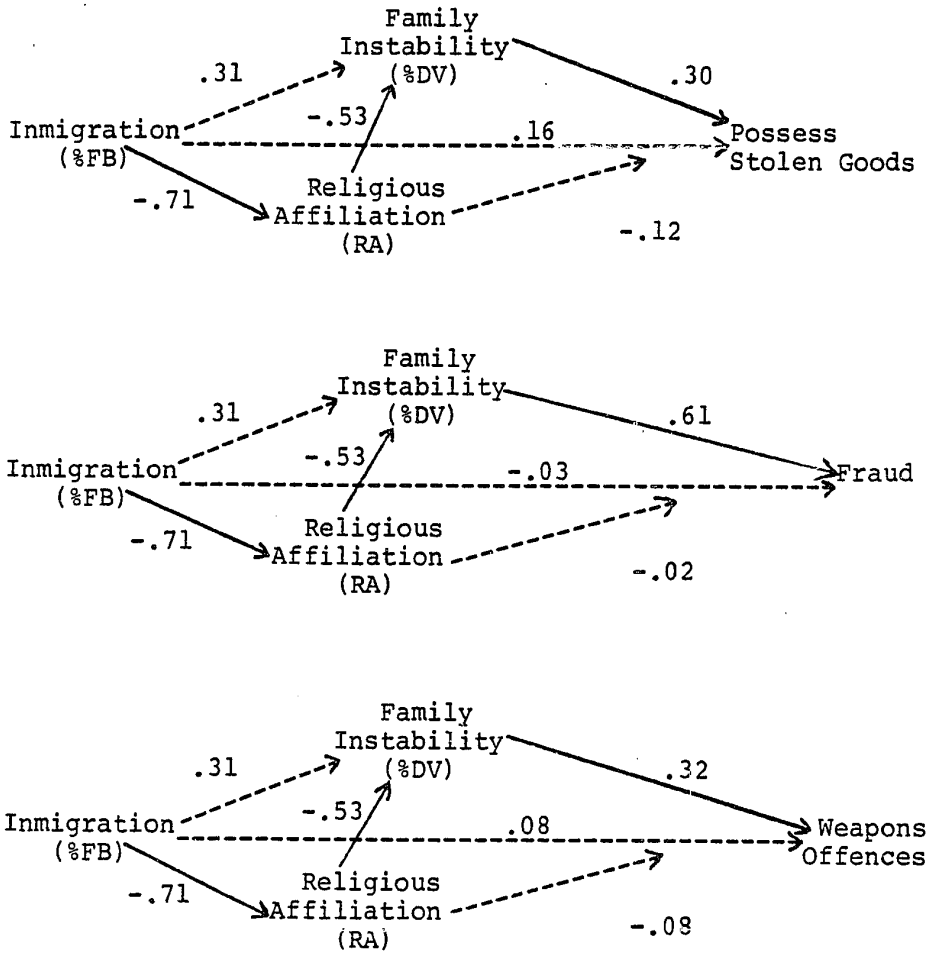


Figure 5: Path Analysis for Crime, Family Instability, (% Non-Family), Religious Affiliation, and Inmigration

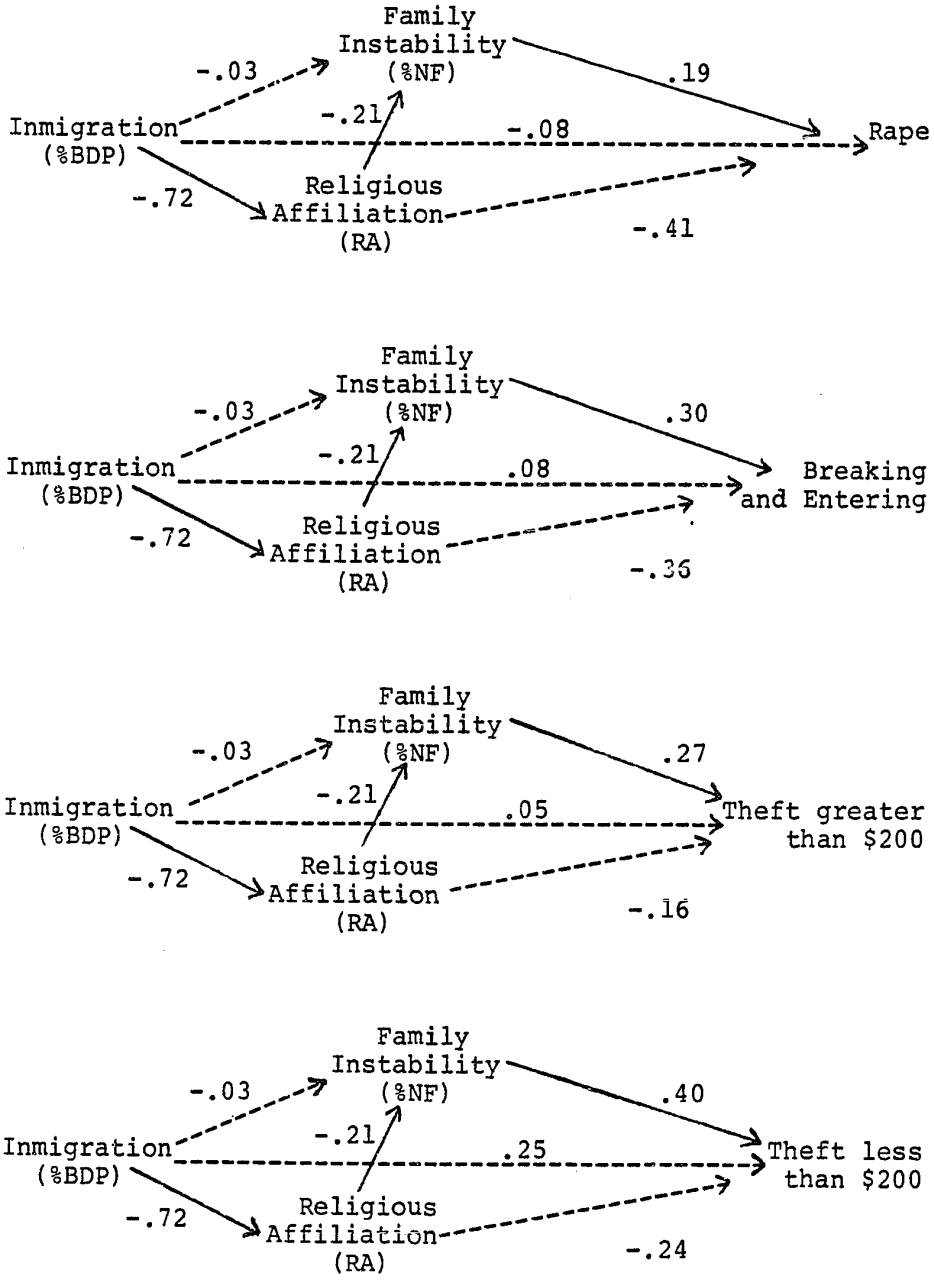
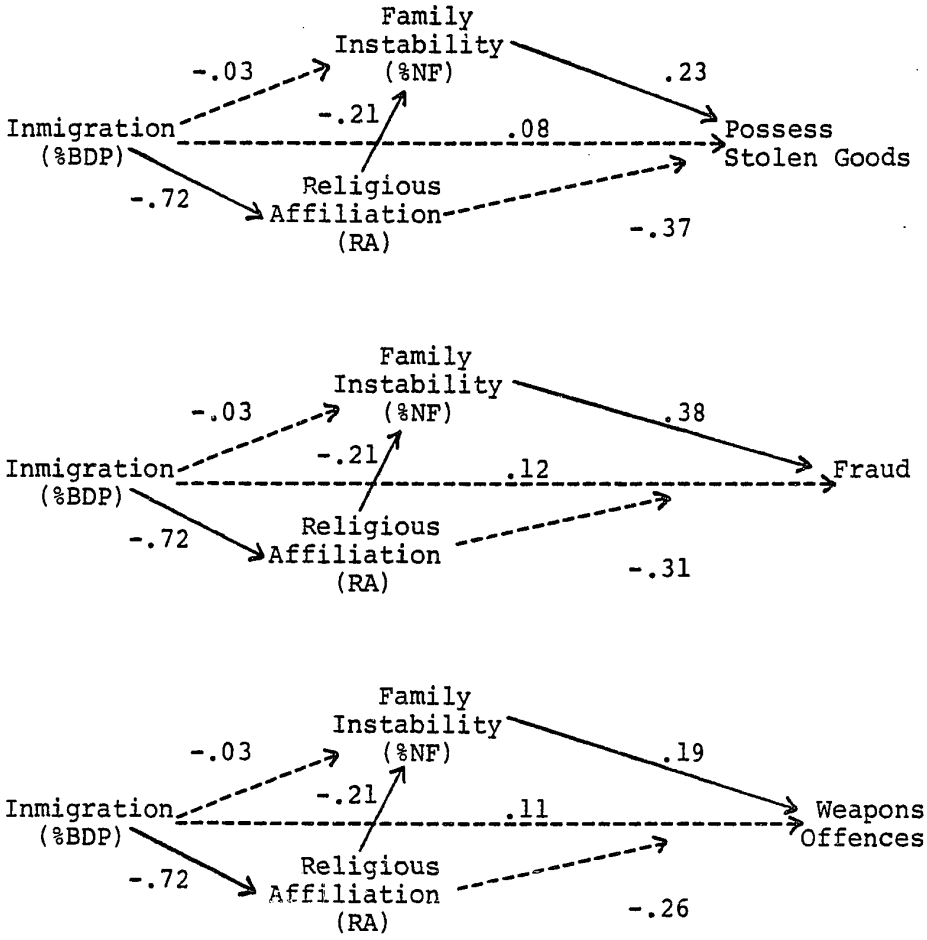


Figure 5 (continued)

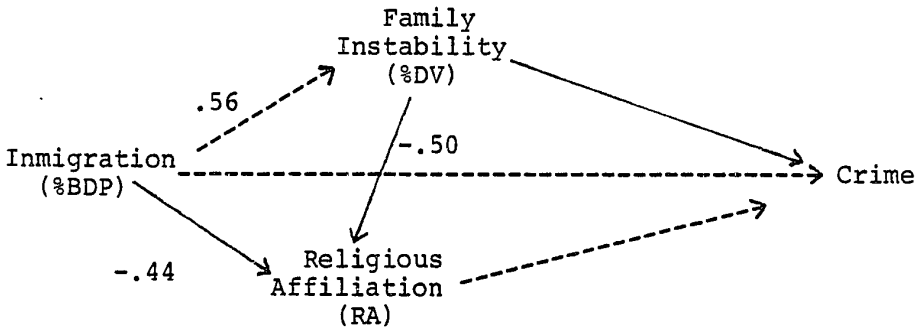


lesser degree. In all cases but one, the direct effect of religious affiliation on crime is negative and significant.

As was mentioned above, another pattern of interrelationships among these variables is consistent with the findings. It is possible that family instability is spurious with regard to crime and religious affiliation. This pattern is shown in the diagram in Figure 6. It is plausible to suggest that family instability leads to low religious affiliation. One way to test this possibility is to estimate a nonrecursive model positing mutual causation between family stability and religious affiliation. Comparing the coefficients for the paths between the two variables provides evidence for ascertaining the true direction of causality. Unfortunately, the instrumental variables needed to identify such a nonrecursive model are not available. But, for the purpose of comparison, the recursive model shown in Figure 6 was estimated. Since it is based on the same variables as the models shown in Figure 3, the coefficients are all the same except for the paths among family stability, religious affiliation, and in-migration. The beta coefficients are shown in Figure 6.

The coefficients are very similar so that the causal order remains somewhat ambiguous. If Figure 6 is the more

Figure 6: The Relationship Between Crime, Family Instability, Religious Affiliation, and Inmigration (Family Instability Causing Religious Affiliation)



accurate representation of reality, religious affiliation would probably add little to the explanation of crime. But, this is not the case. Figure 3 shows that for some crimes, religious affiliation has a significant direct effect. In addition, when the regression equations shown in Table 16 were reestimated excluding religious affiliation, there were some substantial changes in the remaining coefficients. Therefore, the model shown in Figure 3 will be used.

The curious pattern with regard to the unexpected positive relationship between religious affiliation and crime which was mentioned above can also be seen in Table 16 This is the only intentional crime variable where this occurs. It is difficult to explain this anomaly except to attribute it to the instability resulting from multicollinearity. When proportion divorced is excluded from this equation, the religion variable is negatively related to theft but not statistically significant. Two other anomalies of this type appear in Table 16. The youth labor force participation rate and proportion foreign born are slightly negatively related to breaking and entering.

Table 20 reports the results of a regression analysis in which the impulsive crimes are regressed on the same set of community variables plus the control variables. As

Table 20: Regression Analysis Using All the Community Variables and the Control Variables Impulsive Crimes

| | PR | %BDP | %FB | %NF | RA | %DV | RACE | AGE | SEX |
|---|---|---|---|---|---|---|---|---|---|
| Murder | | | | | | | | | |
| b | -.005 | -1.11 | -3.07 | 7.45 | 1.80 | 65.4 | 20.8 | -3.65 | 5.70 |
| beta | -.020 | -.057 | -.135 | .155 | .032 | .293 | .102 | -.041 | .156 |
| significance | .84 | .58 | .26 | .22 | .82 | .07 | .20 | .66 | .12 |
| $R^2$=.10 | Adjusted $R^2$=.06 | | | | | | | | |
| Attempted Murder | | | | | | | | | |
| b | -.014 | -8.08 | -2.36 | -6.56 | -8.12 | 118 | 152 | -3.03 | 5.70 |
| beta | -.042 | -.302 | -.075 | -.099 | -.106 | .382 | .541 | -.025 | .112 |
| significance | .60 | .00 | .43 | .33 | .36 | .00 | .00 | .75 | .16 |
| $R^2$=.41 | Adjusted $R^2$=.39 | | | | | | | | |
| Manslaughter | | | | | | | | | |
| b | -.013 | 2.30 | .712 | -3.22 | 2.43 | 4.83 | 10.6 | 5.05 | -2.76 |
| beta | -.112 | .247 | .065 | -.139 | .091 | .045 | .108 | .119 | -.157 |
| significance | .29 | .02 | .60 | .28 | .54 | .79 | .19 | .23 | .13 |
| $R^2$=.05 | Adjusted $R^2$=.00 | | | | | | | | |
| Wounding | | | | | | | | | |
| b | -.092 | -18.6 | 14.6 | 27.9 | -18.2 | 24.1 | 325 | -2.70 | .252 |
| beta | -.078 | -.199 | .132 | .119 | -.068 | .022 | .330 | -.006 | .001 |
| significance | .43 | .05 | .25 | .33 | .63 | .89 | .00 | .95 | .99 |
| $R^2$=.15 | Adjusted $R^2$=.11 | | | | | | | | |
| Other Assaults | | | | | | | | | |
| b | 5.58 | -13.6 | -84.4 | 838 | 2141 | 18516 | 7167 | -846 | 1329 |
| beta | .152 | -.005 | -.025 | .116 | .258 | .554 | .249 | -.064 | .242 |
| significance | .05 | .95 | .79 | .23 | .02 | .00 | .00 | .39 | .00 |
| $R^2$=.45 | Adjusted $R^2$=.43 | | | | | | | | |

expected, the community variables predict the impulsive crimes somewhat less well. In general, the number of significant community variables is less for each of the impulsive crimes when compared to the intentional crimes. The exception is, not unexpectedly, other assaults which again exhibits a pattern similar to the intentional crimes. Apart from "other assaults" the impulsive crimes are most affected by proportion born in a different province. But the effect is inconsistent. As would be expected, this variable is positively related to manslaughter. But it is negatively related to attempted murder and wounding.

The same set of independent variables was used to predict the crimes classified as a mixture of intentional and impulsive crimes as well as crimes not classified. The results are shown in Table 21. As in the case of the zero order correlations, the community variables do well predicting robbery, auto theft, and "other criminal code violations." Again this leads to the supposition that these crimes are primarily intentional in nature. None of the independent variables are significantly related to sex offenses.

Table 21: Regression Analysis Using All the Community Variables and the Control Variables Other Crimes

| | PR | %BDP | %FB | %NF | RA | %DV | RACE | AGE | SEX |
|---|---|---|---|---|---|---|---|---|---|
| Sex Offences | | | | | | | | | |
| b | .056 | -12.4 | 22.4 | -88.6 | 75.6 | 981 | -31.0 | 81.6 | 22.9 |
| beta | .011 | -.031 | .048 | -.089 | .066 | .213 | -.007 | .045 | .030 |
| significance | .92 | .77 | .70 | .50 | .66 | .21 | .93 | .65 | .77 |
| $R^2$=.02 | Adjusted $R^2$=.00 | | | | | | | | |
| Robbery | | | | | | | | | |
| b | -2.46 | -70.0 | 46.2 | 405 | 88.5 | 2790 | -124 | -17.6 | 213 |
| beta | -.444 | -.159 | .090 | .371 | .071 | .552 | -.027 | -.009 | .256 |
| significance | .00 | .08 | .38 | .00 | .57 | .00 | .70 | .92 | .00 |
| $R^2$=.32 | Adjusted $R^2$=.29 | | | | | | | | |
| Auto Theft | | | | | | | | | |
| b | .138 | -88.1 | -549 | 1289 | -120 | 13675 | -1344 | 564 | 682 |
| beta | .005 | -.042 | -.223 | .247 | -.020 | .566 | -.061 | .059 | .172 |
| significance | .95 | .64 | .03 | .02 | .87 | .00 | .37 | .47 | .04 |
| $R^2$=.34 | Adjusted $R^2$=.31 | | | | | | | | |
| Other Criminal Code Violations | | | | | | | | | |
| b | 6.87 | 564 | -272 | 4872 | 1714 | 31667 | 20309 | -3880 | 4344 |
| beta | .066 | .069 | -.028 | .239 | .073 | .336 | .236 | -.104 | .280 |
| significance | .41 | .40 | .76 | .02 | .52 | .01 | .00 | .17 | .00 |
| $R^2$=.44 | Adjusted $R^2$=.41 | | | | | | | | |

**Community Control and Alternative Explanations**

Multiple regression allows one to examine the relationship between two variables while simultaneously controlling for a number of other independent variables. This property makes it possible to provide more evidence for the efficacy of the set of community control variables by introducing into the regression equations variables derived from alternative explanations. If introducing an alternative variable results in substantial changes in the estimates of the coefficients of the community variables or a large increase in explained variance, there is evidence that the original equation was not correctly specified. If the alternative variable has a significant effect even when the community control variables are controlled, the alternative explanation gains support.

For each of the intentional crimes a regression equation was estimated that included the community variables and the control variables. Next, one set of alternative variables was added and the equation reestimated. Analogously, an equation containing the alternative explanation variables and control variables was estimated and the community variables added in a second step. The sets of test variables are those shown in Table 10. The economic explanations are measured by the average income variables and the unemployment rates.

Density and crowding are operationalized using population density and average number of persons per room in dwelling units. The deterrence hypothesis is represented by the 1971 clearance rate.

One way in which the community control perspective can be contrasted with the alternative explanations is to note the effects on the coefficients already in the equations when the set of alternative explanation variables are added. A substantial alteration of the coefficients (especially if some of the added variables are statistically significant) signals the possibility that the equation is not properly specified.

Of the equations estimated in this exercise, the community variables were substantially altered by the addition of test variables in only three cases. When the economic explanation variables were added to the equations for rape, breaking and entering, and theft less than $200, one of the community variables fell below the .10 level of significance. The crowding and deterrence explanations generated no substantial changes in the community coefficients.

In a few cases (shown in Table 22) one or more of the test variables had a significant direct effect when added to the equations. Several of the economic measures were significant at the .10 level when added to the equations

Table 22: Alternative Explanation Variables That Have a Significant Impact

| Crime | Economic explanations | Crowding | Deterrence |
|---|---|---|---|
| Rape | | | |
| Breaking and Entering | X | X | X |
| Theft greater than $200 | X | X | X |
| Theft less than $200 | | | |
| Possession of stolen goods | | | X |
| Fraud | X | | |
| Weapons offense | | | |

predicting breaking and entering, theft greater than $200, and fraud. The crowding variable is significant when added to the equations for breaking and entering and theft greater than $200 while the deterrence measure has a direct effect on breaking and entering, theft greater than $200, and possession of stolen goods. It appears from these findings that for some of the crimes the alternative explanations (especially the economic explanations) do have some degree of merit.

All of the community, control, economic, crowding, and deterrence variables were entered simultaneously into a regression equation for weapons offenses. The object of this exercise is to note the effects of simultaneous control for the various alternative explanations on the coefficients for community variables. The category "weapons offenses" was chosen to be used as an example because it was not affected when sets of alternative variables were entered individually. The coefficients and the explained variance are listed in Table 23.

The additional explained variance is not significant. In fact, the adjusted $R^2$ decreases when all of the alternative theory variables are added. It is clear that the estimated coefficients change very little. The most powerful predictors among the community variables and the most powerful predictors in each equation (with the

Table 23: Regression of Weapons Offenses on All the Independent Variables

| | PR | %BDP | %NF | RA | %DV |
|---|---|---|---|---|---|
| b | .452 | -22.9 | 234 | 87.2 | 1256 |
| beta | .109 | -.070 | .287 | .093 | 332 |
| significance | .36 | .49 | .02 | .49 | .03 |

| | %FB | RACE | AGE | SEX | $NF |
|---|---|---|---|---|---|
| b | 26.5 | 632 | -182 | 166 | -.001 |
| beta | .068 | .183 | -.121 | .267 | -.030 |
| significance | .61 | .01 | .22 | .03 | .76 |

| | $HH | $FAM | MUE | FUE | CLR |
|---|---|---|---|---|---|
| b | .002 | -.001 | -123 | 104 | -3.04 |
| beta | .093 | -.064 | -.103 | .083 | -.013 |
| significance | .89 | .92 | .37 | .40 | .85 |

| | PD | PPR |
|---|---|---|
| b | -.127 | 62.4 |
| beta | -.013 | .144 |
| significance | .87 | .33 |

$R^2$=.34 Adjusted $R^2$=.28

exception of two of the control variables) remain proportion divorced and proportion non-family.

Table 24 summarizes results that also test the strength of community control perspective relative to other explanations. For each intentional crime, this table shows the amount of explained variance and the increment in explained variance for each step. Community variables (and control variables) are entered first and the set of test variables are entered second. Then the set of test variables (and control variables) is entered first and the community variables entered second.

The pattern of results shown in this table is very clear. Comparing columns C and E shows that for each crime and for each set of alternative variables, the community variables explain more of the variance in intentional crime rates. Adding the set of test variables to the community variables leads to only a slight if any increase in explained variance. However, adding the community variables to the regression of the test variables always results in a significant and substantial increase in variance explained. In terms of the amount of explained variance, community control variables provide a more adequate explanation of intentional crimes than do the economic, crowding, or deterrence hypotheses.

Table 24: Explained Variance When Test Variables Are Added to the Community Variables and the Community Variables Are Added To the Test Variables

| | | A | B | C | D | E |
|---|---|---|---|---|---|---|
| Rape | | | | | | |
| Economic Explanations | $R^2$ | .24 | .21 | .03 | .14 | .10 |
| | adjusted $R^2$ | .18 | .17 | .01 | .11 | .07 |
| Density | $R^2$ | .23 | .21 | .02 | .13 | .10 |
| | adjusted $R^2$ | .19 | .17 | .02 | .11 | .08 |
| Deterrence | $R^2$ | .22 | .21 | .01 | .13 | .09 |
| | adjusted $R^2$ | .18 | .17 | .01 | .11 | .06 |
| Breaking and Entering | | | | | | |
| Economic Explanations | $R^2$ | .44 | .40 | .04 | .15 | .29 |
| | adjusted $R^2$ | .39 | .38 | .01 | .11 | .28 |
| Density | $R^2$ | .43 | .40 | .03 | .15 | .28 |
| | adjusted $R^2$ | .40 | .38 | .02 | .13 | .27 |
| Deterrence | $R^2$ | .46 | .40 | .06 | .16 | .30 |
| | adjusted $R^2$ | .43 | .38 | .05 | .15 | .28 |
| Theft greater than $200 | | | | | | |
| Economic Explanations | $R^2$ | .32 | .23 | .09 | .14 | .17 |
| | adjusted $R^2$ | .27 | .20 | .07 | .10 | .17 |
| Density | $R^2$ | .28 | .23 | .05 | .09 | .19 |
| | adjusted $R^2$ | .24 | .20 | .04 | .06 | .18 |
| Deterrence | $R^2$ | .31 | .23 | .08 | .15 | .16 |
| | adjusted $R^2$ | .27 | .20 | .07 | .13 | .14 |
| Theft less than $200 | | | | | | |
| Economic Explanations | $R^2$ | .58 | .56 | .02 | .21 | .37 |
| | adjusted $R^2$ | .54 | .54 | .00 | .18 | .36 |
| Density | $R^2$ | .56 | .56 | .00 | .32 | .24 |
| | adjusted $R^2$ | .54 | .54 | .00 | .31 | .23 |
| Deterrence | $R^2$ | .56 | .56 | .00 | .15 | .41 |
| | adjusted $R^2$ | .54 | .54 | .00 | .13 | .41 |

Table 24 (continued)

| | | A | B | C | D | E |
|---|---|---|---|---|---|---|
| Possesion of stolen goods | | | | | | |
| Economic Explanations | $R^2$ | .35 | .32 | .03 | .13 | .22 |
| | adjusted $R^2$ | .30 | .29 | .01 | .09 | .21 |
| Density | $R^2$ | .34 | .32 | .02 | .20 | .14 |
| | adjusted $R^2$ | .30 | .29 | .01 | .18 | .12 |
| Deterrence | $R^2$ | .35 | .32 | .03 | .08 | .27 |
| | adjusted $R^2$ | .30 | .29 | .01 | .06 | .24 |
| Fraud | | | | | | |
| Economic Explanations | $R^2$ | .45 | .42 | .03 | .18 | .27 |
| | adjusted $R^2$ | .42 | .40 | .02 | .15 | .27 |
| Density | $R^2$ | .43 | .42 | .01 | .26 | .17 |
| | adjusted $R^2$ | .40 | .40 | .00 | .24 | .16 |
| Deterrence | $R^2$ | .43 | .42 | .01 | .12 | .31 |
| | adjusted $R^2$ | .40 | .40 | .00 | .10 | .30 |
| Weapons offenses | | | | | | |
| Economic Explanations | $R^2$ | .34 | .34 | .00 | .21 | .13 |
| | adjusted $R^2$ | .29 | .30 | .01 | .18 | .11 |
| Density | $R^2$ | .34 | .34 | .00 | .24 | .10 |
| | adjusted $R^2$ | .30 | .30 | .00 | .22 | .08 |
| Deterrence | $R^2$ | .34 | .34 | .00 | .18 | .16 |
| | adjusted $R^2$ | .30 | .30 | .00 | .16 | .14 |

A: Total variance explained when the community variables and the test variables are in the equation
B: Variance explained by the community variables alone
C: The variance explained by the test variables when entered into the equation second (columns A minus B)
D: Variance explained by the test variables alone
E: The variance explained by the community variables when entered into the equation second (columns A minus D)

## Conclusions

In general, the empirical analysis provides support for the community control perspective. The bivariate and partial correlation coefficients are essentially as predicted. The community variables are highly correlated with all of the intentional crimes. They are also correlated with some of the other crimes but generally to a lesser extent.

The regression analysis also provides support for the community control perspective. The set of variables arrived at do a good job of predicting intentional crimes. The path analysis provides help in interpreting the low direct effect of religious affiliation and the in-migration variables on crime. It appears that religious affiliation operates primarily through its effect on family stability. In-migration in turn affects crime indirectly through religious affiliation.

The community control approach laid out in the previous chapters did not discuss in detail the particular causal ordering among the independent variables. In the regression analysis, the environmental disorganization factors--in-migration, family instability, and youth labor force participation--and community integration (as measured by religious affiliation) were allowed to operate as separate independent variables to predict intentional

crime. However, it was stated that the environmental disorganization factors operate to hinder or facilitate community integration. A sense of belonging can only develop when individuals are provided with opportunities to form affiliations, a set of network ties. The above analysis suggests that the situation is somewhat more complicated. It appears that some of the environmental disorganization factors (notably in-migration) are causally prior to the measure of integration. But the integration measure seems to work primarily through its effect on family stability (another environmental disorganization factor).

The proposed typology of crime rates does not work well for a few of the Canadian crime categories. The category "other assaults" seems to be misclassified when placed among the impulsive crimes. Also, auto theft and "other criminal code violations" would probably be better placed among the intentional crime rather than the "mixed" classification. As has been noted, some of the categories are not well specified making the task of classification extremely difficult. Nevertheless, the intentional/impulsive dichotomy seems to be a useful typology.

The comparative regression analysis shows that the community crime perspective fares very well relative to the alternative explanations. A few cases were noted

where the alternative explanations could make a significant contribution. It has not been the contention of this dissertation that the alternative explanations are wrong but rather that the community control perspective is a relatively powerful predictor of crime and especially intentional crime. This is clearly the case. But aspects of the other theories have merit. In Chapter I, the point is developed that alternative theories are not necessarily mutually exclusive and that there is an ongoing need for theoretical integration. I will return to this point and discuss some suggested integrations in Chapter VIII.

# VIII. Conclusions

This dissertation started with the proposition that the integration of previous theoretical work to develop new perspectives can be useful. In particular, it was hoped that a synthesis and extension of some well established theoretical traditions could alleviate many of the serious problems that have plagued the ecological study of deviance. The purpose of this chapter is to come to some conclusions regarding how successful this effort has been and to discuss what future research is needed.

The major proposals and findings of each chapter will be summarized. The implications of the findings will be discussed. Modifications of the original perspective will be suggested and prospects for future research will be examined.

## Major Proposals and Findings

An extensive review of the literature established the need for a more theoretically based ecology of deviance. Although this sort of analysis has been carried out for many years, the bulk of ecological analysis has serious problems. But, the problems seem to stem from a single root--the lack of a strong theoretical basis.

Lack of clarity regarding what is being studied has led to problems with the ecological fallacy. An adequate ecological level theory must specifically address ecological level phenomena. The unit of analysis must be explicit. These problems are exacerbated by the lack of a strong theory. When notions about the criminal behavior of individuals are directly applied to rates of crime in a community, there is a very real danger of falling into the ecological fallacy.

Theoretical weakness has also resulted in the tendency to rely on more exploratory statistical procedures. In the absence of theory, it is impossible to make strong predictions regarding important variables. The exploratory factor analyses of the past have since largely given way to the use of correlation and regression. Even those using regression have generally underutilized the technique. Several rely on stepwise regression which is primarily an exploratory technique. Few have made any attempt to control for alternative explanation variables or to contrast their explanation with alternatives by adding the alternative variables to the regression equations. There have been no attempts to specify the nature of the relations among the independent variables through the use of path analysis or structural equation techniques.

In the absence of strong theory, it is impossible to establish causal links. Knowing that a given area of a city or a given city has high crime is less interesting than knowing why this is so. It is only with the more recent studies that the focus of ecological analysis has shifted from description to analysis.

The community control perspective described in Chapter III is the result of an effort to address many of these problems. It has firm theoretical roots in the work of Durkheim, the social disorganization theorists of the Chicago School, and modern control theory. There is no confusion with regard to the appropriate unit of analysis. It is specific enough to generate testable hypotheses that can be analyzed with the more sophisticated statistical techniques.

The community control perspective draws several important ideas from Durkheim. The first idea is the vital role of the community as the source of social control. For Durkheim, society is something more than merely a collection of individuals. Ultimately, behavior is constrained primarily by "social facts"--those rules, obligations, and duties external to ourselves. In the socially integrated community, deviance is most effectively controlled. Durkheim also places great emphasis on the unique integrative role of religion. The

power of religion comes not from its effect on individual morality but rather through its ability to bind individuals together in a sense of belonging. Membership and participation are more important than moral codes in constraining deviance.

The Chicago sociologists focused attention on those factors in the physical and social environment that disrupt the social equilibrium. They noted the importance of population instability as a disruptive force.

Social control theory provides a theoretical link between crime and the lack of community integration and stability. At the individual level, control theory shows that individuals are free to deviate when the bonds that attach them to others and to the social order are weak, broken, or absent. The individual level concept of bonds can be extended to the ecological level of analysis.

The community control perspective synthesizes these ideas in order to extend social control theory to the ecological level of analysis. Bonding among individuals is analogous to integration within a community. Factors that encourage bonding among community members (such as population stability) thus encourage community integration. The stronger the level of community integration, the lower the crime rate is likely to be. This is not to say that a given individual who migrates

frequently is more likely to be criminal. Such individual level assertions cannot be made on the basis of aggregated data. Rather, it is hypothesized that the integration of the community as a whole is lessened when population instability is present.

For heuristic purposes, two types of community control factors were distinguished: community integration and environmental disorganization. The first refers to the sense of belonging, the feeling of community. The second refers to aspects of the physical and social environment that hinder the development of integration. The former seems to be contingent on the latter.

Canadian crime and census data were used to operationalize major concepts to test the community control perspective. While measurement is still a major problem, the data appear to be adequate to complete the task. Following Durkheim, the total religious affiliation in an area is used as a measure of integration. Other community control variables used include the proportion of persons born in a different province, the proportion of persons who are foreign born, the proportion of non-family persons living in an area, the labor force participation rate of those 15 to 19, and the proportion divorced.

Major alternative explanations drawn from the literature review are also operationalized. These

alternative explanations include economic explanations, density and crowding measures, subcultural explanations, and the deterrence theory.

A descriptive analysis was carried out to note important patterns in the distribution of the major variables. The sample of towns used in this analysis appears to be reasonably representative of urban areas in Canada. The western provinces have the highest rates of most forms of deviance. A similar pattern emerged with regard to the proportion of persons claiming a religious affiliation. The farther West, the lower is the church membership rate.

It was hypothesized that since crime is such a diverse phenomenon, no single approach could explain all types of crime. A typology of crime was devised based on the community control perspective. Crimes were divided into impulsive and intentional categories. Intentional crimes are those that involve a degree of rational calculation, a weighing of the costs and benefits involved. These are the crimes that the community control variables have a reasonable chance of constraining. Impulsive crimes are etiologically idiosyncratic and are thus less subject to the constraints of the community control factors.

The crime categories found in the Canadian data were classified according to this typology. A confirmatory factor analysis provided some support for this proposed classification. With a few exceptions, the intentional crimes tended to cluster together under the first two factors while the impulsive crimes were more scattered.

The community control perspective itself was tested using a variety of statistical techniques. The evidence for the efficacy of this approach is significant. The correlational analysis shows that the bivariate and partial correlations are essentially as predicted. Intentional crimes correlate highly with the community control variables.

The regression analysis showed that all the community control variables except the in-migration and religious affiliation measures had a significant direct effect on one or more of the intentional crime rates. A path analysis helped to clarify the reason for these findings. Religious affiliation appears to work primarily through its effect on family stability. In-migration appears to have an indirect effect through religious affiliation and family stability.

The crime typology proposed above works well for most of the crime classifications. The category "other assaults" tends to behave more like the intentional than

the impulsive crimes. More information is needed about this category and a few others in order to resolve the discrepancy.

By comparing the amount of variance explained, it was shown that the community control variables perform well relative to other explanations. In every case, the set of community control variables add substantially to the explained variance while the variables from alternative explanations add little or nothing.

## Implications of the Results

Several of the findings have implications for future research and social policy. Obviously, conclusions drawn in this study are tentative. However, a few comments are in order.

This paper has reaffirmed the findings of others that crime is not a unitary construct. All the evidence shows that the term crime encompasses a wide variety of types of behavior. Research that treats all crimes alike is likely to be seriously flawed. Similarly, policies designed to attack one type of crime may or may not work against other types, depending on how etiologically similar they are.

Efforts to study and to lessen intentional crimes would probably do well to address the importance of community integration. This sort of approach has been

successfully used at the individual level. An example is the social development model used in the National Center for the Assessment of Delinquent Behavior and Its Prevention Research and Development Project (Hawkins and Weis, 1980). The approach is also being tried among neighborhood groups in the form of the Block Watch programs now being instituted nationally. At the larger ecological unit, efforts should be focused on building a sense of community.

**Further Synthesis and Future Directions in Research**

The fact that some of the alternative explanation variables have a significant impact on some types of crime shows that it might be fruitful to include certain aspects of these theories in a more general ecological theory of crime. A few such combinations will be discussed below.

It might be possible to integrate some of the economic explanation variables into a more general ecological theory. Like the present study, Crutchfield et al. (1982) found that these factors are important predictors of some types of crime. While Blau and Blau (1982) were addressing the problem of violent offenses, some of their theoretical work could be relevant here. They believe that economic inequality engenders conflict between individuals and thus crime. The kinds of conflict

they discuss are the antithesis of social integration. Income inequality and poverty can be seen as factors limiting the sense of belonging in an area.

Some of the alternative explanations for which measures were not available may also have relevance for future theoretical work. The importance of the physical design of an area is emphasized by a number of authors (Newman, 1972; Jeffery, 1971). The physical environment of a city can be designed to facilitate the interaction among community members and decrease the sense of anonymity that might free individuals to commit deviant acts.

Several researchers have suggested that control theory is related to deterrence theory (Geerken and Gove, 1975; Crutchfield et al., 1982). It is argued that both see man as essentially a rational actor, weighing the chances of and potential consequences of success against the chances of and consequences of failure. The bonds discussed in control theory and the stakes in conformity that they entail are among several factors figuring into the individual's calculations. It appears that the community control approach is not incompatible with deterrence theory.

It is obvious that there are ample opportunities for further research in the ecological analysis of deviance.

The present paper has set the goal of delineating and testing a core set of community control variables. It has been successful in this goal but more work is needed. More variables will be added and tested in the future.

This research represents one step in a larger agenda. The ultimate goal of this line of research is to devise an integrated theory of crime that can address issues at both the individual and ecological level. Such a theory will probably entail a contextual approach to the study of crime. Crime is the result of both individual and community level factors and researchers should endeavor to fully understand both.

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## APPENDIX A

### Towns and Cities in the Sample

| Town or City | Population 1971 |
|---|---|
| Ajax, Ont. | 12,540 |
| Alma, Que. | 22,775 |
| Anjou, Que. | 33,895 |
| Arvida, Que. | 18,445 |
| Baie-Comeau, Que. | 12,095 |
| Barrie, Ont. | 27,670 |
| Bathurst, N.B. | 16,690 |
| Beaconsfield, Que. | 19,450 |
| Beauport, Que. | 14,680 |
| Belleville, Ont. | 35,140 |
| Beloeil, Que. | 12,395 |
| Boucherville, Que. | 20,000 |
| Brampton, Ont. | 41,200 |
| Brandon, Man. | 31,265 |
| Brantford, Ont. | 64,440 |
| Brockville, Ont. | 19,755 |
| Brossard, Que. | 23,545 |
| Burlington, Ont. | 87,015 |
| Calgary, Alta. | 403,325 |
| Campbellton, N.B. | 10,385 |
| Cap-de-la-Madeleine, Que. | 31,550 |
| Chambly, Que. | 11,455 |
| Charlesbourg, Que. | 33,450 |
| Charlottetown, P.E.I. | 19,145 |
| Chateauguay, Que. | 15,800 |
| Chateauguay-Centre, Que. | 17,900 |
| Chatham, Ont. | 35,320 |
| Chicoutimi, Que. | 33,870 |
| Chicoutimi-Nord, Que. | 14,060 |
| Cobourg, Ont. | 11,285 |
| Corner Brook, Nfld. | 26,520 |
| Cornwall, Ont. | 47,225 |
| Cote-St-Luc, Que. | 24,375 |
| Cowansville, Que. | 11,865 |
| Cranbrook, B.C. | 11,995 |
| Dartmouth, N.S. | 64,785 |
| Dawson Creek, B.C. | 11,805 |
| Dollard-des-Ormeaux, Que. | 25,215 |
| Dorval, Que. | 20,460 |
| Drummondville, Que. | 32,030 |
| Dundas, Ont. | 17,200 |
| East Kildonan, Man. | 30,150 |
| Edmonton, Alta. | 438,425 |
| Edmundston, N.B. | 12,585 |

| | |
|---|---|
| Fredericton, N.B. | 24,320 |
| Galt, Ont. | 38,910 |
| Gaspe, Que. | 17,210 |
| Gatineau, Que. | 22,365 |
| Georgetown, Ont. | 17,050 |
| Giffard, Que. | 13,135 |
| Glace Bay, N.S. | 22,445 |
| Granby, Que. | 34,415 |
| Grande Prairie, Alta. | 13,125 |
| Grand'Mere, Que. | 17,185 |
| Greenfield Park, Que. | 15,355 |
| Guelph, Ont. | 60,210 |
| Halifax, N.S. | 122,030 |
| Hamilton, Ont. | 309,180 |
| Hauterive, Que. | 13,175 |
| Hull, Que. | 63,565 |
| Joliette, Que. | 21,190 |
| Jonquiere, Que. | 28,425 |
| Kamloops, B.C. | 26,250 |
| Kapuskasing, Ont. | 12,820 |
| Kelowna, B.C. | 19,430 |
| Kenogami, Que. | 10,925 |
| Kenora, Ont. | 10,990 |
| Kingston, Ont. | 59,065 |
| Kitchener, Ont. | 111,810 |
| Lachine, Que. | 44,440 |
| Lachute, Que. | 11,785 |
| LaSalle, Que. | 72,905 |
| La Tuque, Que. | 13,250 |
| Lauzon, Que. | 12,810 |
| Laval, Que. | 227,980 |
| Leamington, Ont. | 10,440 |
| Lethbridge, Alta. | 41,200 |
| Levis, Que. | 16,595 |
| Lindsay, Ont. | 12,755 |
| London, Ont. | 223,270 |
| Longueuil, Que. | 97,585 |
| Loretteville, Que. | 11,660 |
| Magog, Que. | 13,420 |
| Matane, Que. | 11,890 |
| Medicine Hat, Alta. | 26,510 |
| Midland, Ont. | 10,985 |
| Mississauga, Ont. | 156,080 |
| Moncton, N.B. | 47,870 |
| Montmagny, Que. | 12,430 |
| Montreal, Que. | 1,214,375 |
| Montreal-Nord, Que. | 89,135 |
| Mont-Royal, Que. | 21,565 |
| Moose Jaw, Sask. | 31,890 |

| | |
|---|---|
| Nanaimo, B.C. | 14,955 |
| New Glasgow, N.S. | 10,850 |
| New Westminster, B.C. | 42,895 |
| Noranda, Que. | 10,740 |
| North Battleford, Sask. | 12,760 |
| North Bay, Ont. | 49,185 |
| North Vancouver, B.C. | 31,860 |
| Oakville, Ont. | 61,490 |
| Orillia, Ont. | 24,120 |
| Oromocto, N.B. | 11,585 |
| Orsainville, Que. | 12,545 |
| Oshawa, Ont. | 91,590 |
| Ottowa, Ont. | 302,430 |
| Outremont, Que. | 28,625 |
| Owen Sound, Ont. | 18,310 |
| Pembroke, Ont. | 16,560 |
| Penticton, B.C. | 18,150 |
| Peterborough, Ont. | 58,145 |
| Pierrefonds, Que. | 33,020 |
| Ponte-aux-Trembles, Que. | 35,550 |
| Pointe-Claire, Que. | 27,305 |
| Pointe-Gatineau, Que. | 15,640 |
| Portage la Prairie, Man. | 12,975 |
| Port Alberni, B.C. | 20,065 |
| Port Coquitlam, B.C. | 19,560 |
| Preston, Ont. | 16,745 |
| Prince Albert, Sask. | 28,455 |
| Prince George, B.C. | 33,020 |
| Prince Rupert, B.C. | 15,740 |
| Quebec, Que. | 186,030 |
| Red Deer, Alta. | 27,540 |
| Regina, Sask. | 139,435 |
| Repentigny, Que. | 19,530 |
| Rimouski, Que. | 26,905 |
| Riviere-du-Loup, Que. | 12,785 |
| Rouyn, Que. | 17,815 |
| St. Albert, Alta. | 11,845 |
| St. Boniface, Man. | 46,750 |
| St-Bruno-de-Montarville, Que. | 15,785 |
| Ste-Foy, Que. | 68,415 |
| St-Hubert, Que. | 21,740 |
| St-Hyacinthe, Que. | 24,595 |
| St. James-Assiniboia, Man. | 71,385 |
| St-Jean, Que. | 32,975 |
| St-Jerome, Que. | 26,465 |
| St. John's, Nfld. | 88,110 |
| St-Lambert, Que. | 18,620 |
| St-Laurent, Que. | 62,940 |
| St-Leonard, Que. | 52,035 |

| | |
|---|---|
| Ste-Therese, Que. | 17,165 |
| St. Thomas, Ont. | 25,570 |
| St. Vital, Man. | 32,945 |
| Saint John, N.B. | 89,115 |
| Sarnia, Ont. | 57,625 |
| Saskatoon, Sask. | 126,565 |
| Sault Ste. Marie, Ont. | 80,545 |
| Sept-Iles, Que. | 24,365 |
| Shawinigan, Que. | 27,880 |
| Shawinigan-Sud, Que. | 11,425 |
| Sherbrooke, Que. | 80,730 |
| Sillery, Que. | 13,940 |
| Simcoe, Ont. | 10,795 |
| Sorel, Que. | 19,320 |
| Stratford, Ont. | 24,610 |
| Sudbury, Ont. | 90,515 |
| Swift Current, Sask. | 15,575 |
| Sydney, N.S. | 33,240 |
| Thetford Mines, Que. | 21,965 |
| Thompson, Man. | 19,050 |
| Thunder Bay, Ont. | 108,445 |
| Timmins, Ont. | 28,490 |
| Toronto, Ont. | 713,135 |
| Tracy, Que. | 11,800 |
| Trail, B.C. | 11,100 |
| Transcona, Man. | 22,470 |
| Trenton, Ont. | 14,595 |
| Trois-Rivieres, Que. | 55,890 |
| Truro, N.S. | 13,025 |
| Val-D'Or, Que. | 17,425 |
| Valleyfield (Salaberry-de-), Que. | 30,230 |
| Vancouver, B.C. | 426,270 |
| Vanier, Ont. | 22,430 |
| Verdun, Que. | 74,695 |
| Vernon, B.C. | 13,280 |
| Victoria, B.C. | 61,745 |
| Victoriaville, Que. | 22,045 |
| Wallaceburg, Ont. | 10,545 |
| Waterloo, Ont. | 36,615 |
| West Kildonan, Man. | 24,085 |
| Westmount, Que. | 23,570 |
| Whitby, Ont. | 25,350 |
| White Rock, B.C. | 10,350 |
| Windsor, Ont. | 203,370 |
| Winnepeg, Man. | 246,270 |
| Woodstock, Ont. | 26,275 |
| Yorkton, Sask. | 13,445 |

| Townships or Municipalities | Population 1971 |
|---|---|
| Ancaster, Ont. | 15,320 |
| Burnaby, B.C. | 125,655 |
| Campbell River, B.C. | 10,040 |
| Charleswood, Man. | 12,185 |
| Chilliwhack, B.C. | 23,745 |
| Chinguacousy, Ont. | 30,965 |
| Delta, B.C. | 45,780 |
| Esquimalt, B.C. | 12,935 |
| Fort Garry, Man. | 26,135 |
| Gloucester, Ont. | 37,125 |
| Innisfil, Ont. | 10,490 |
| Kitimat, B.C. | 11,935 |
| Langley, B.C. | 21,935 |
| Matsqui, B.C. | 23,555 |
| Mission, B.C. | 10,285 |
| Nepean, Ont. | 64,595 |
| North Cowitchan, B.C. | 12,245 |
| North Vancouver, B.C. | 57,940 |
| Oak Bay, B.C. | 18,425 |
| Pickering, Ont. | 31,735 |
| Powell River, B.C. | 13,735 |
| Richmond, B.C. | 62,110 |
| Saanich, B.C. | 65,035 |
| Saltfleet, Ont. | 19,000 |
| Sandwich West, Ont. | 12,105 |
| Sarnia, Ont. | 10,030 |
| Surrey, B.C. | 98,565 |
| West Vancouver, B.C. | 36,470 |
| York, Ont. | 147,270 |

## VITA

Daniel Paul Doyle was born on September 15, 1955 in Los Angeles, California. His parents are Mark and Elizabeth Doyle who reside in Glendale, California. He graduated from Pater Noster High School in Los Angeles in 1973 and attended Glendale Community College for two years. He received a Bachelor of Arts in Sociology at the University of California at Los Angeles in 1977 and a Master's degree in Sociology at the University of Washington in 1979.